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ECONOMICS:
PRINCIPLES AND PROBLEMS



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ECONOMICS:

PRINCIPLES AND PROBLEMS

BY

LIONEL D. EDIE

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NEW YORK
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TO MY MOTHER
FLORENCE S. EDIE

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PREFACE

THE purpose of this book is to provide an introduction to economics for university students and general readers. This purpose involves a statement both of orthodox economic principles and of modern economic developments. The contemporary generation of economists have extended the science beyond the boundaries reached by earlier economists, and it is proper that these extensions should be integrated with the main body of traditional economic thought.

Although many new tendencies are included in such an undertaking, nevertheless there is no intent to discard or to slight the great contributions made by classical and neo-classical economists. Their contributions are the foundations upon which must be built whatever additions and extensions modern growth may require. Our heritage of economic thought, in spite of many errors and fallacies, offers the most reliable basis from which to project whatever is new and worthwhile in contemporary economic thought.

The task of merging new with old viewpoints affords many problems for dispute among economists. In a purely critical treatise, to be read only by economists, it would be appropriate to argue each disputed point. But in an introductory text book in economics, this controversial treatment could only lead to confusion and bewilderment among students. Accordingly, the plan of the writer has been to state as clearly and coherently as possible the content of economics when the newer developments are integrated with the older traditions of the science, without complicating the study by technical controversy over disputed issues.

A survey of economic science at the present time reveals a vast fund of research in particular problems, and a literature of countless monographs, technical articles, special volumes, and scientific reports. This fund of material has never found its way into the main body of economic theory. The textbooks state the classical principles of economics. The monographs and technical articles state the findings of current research. Between the two lies a chasm. But this separation is neither necessary nor desirable. The bodies of thought should be brought together; they should be cast into a unified whole.

No attempt has been made to build an entirely new system of economic thought. System building has had its part to play in the past, but for the present study the creation of some new system of thought has seemed unnecessary. It has seemed sufficient to endeavor simply to integrate the many separate branches of economic investigation, and to unify the growing content of the science. It has been assumed that the

subject matter and the points of view possess a fundamental solidarity and unity.

The task of sifting the material of modern research through one mind involves a very wide field of study, and the writer can scarcely claim to have absorbed completely the research in all fields. In spite of inevitable limitations, however, it is hoped that the main content of the new material has been assimilated, and made a part of the treatment.

As the title implies, the book deals with problems as well as with principles of economics. The problems are not merely "cases," such as are employed where the so-called "case method" is in vogue. Rather, they are actual economic issues of national or international concern. They are basic public problems of the present age.

Some of the salient features of the new material and of the new approach to the subject may be formulated as follows:

1. The presentation of the historical background of economic society has been influenced by the trend of the newer historical and anthropological research.

2. Quantitative methods supplement qualitative, and necessitate the frequent use of statistical measurement.

3. A factual and descriptive content is read into the theories and principles.

4. The relationship between a more or less constant human equipment of emotions, capacities, etc., and a highly variable economic culture is emphasized. The psychological presuppositions are brought into line with modern psychology. The method of treatment does not lead into a theoretical analysis of psychological terms, but depends upon an account of how human nature reacts to its economic environment. Economic behaviorism seeks to discover exactly what men do under the stimulus of given economic circumstances.

5. Institutional growths rather than immutable motives, inexorable laws, and a fixed social order, are looked upon as governing factors in the economic conduct of communities.

6. A frank ethical concern for welfare and well-being is adhered to, instead of an assumed but futile neutrality on the ethical implication of all questions.

7. The "money economy," and the relations between pecuniary and technological performance constitute threads of analysis running through all phases of the subject. Economic institutions reflect the "state of the money arts" as well as the "state of the industrial arts."

8. The tentative nature of generalizations is stressed, rather than the finality of dogmatic laws. Principles are regarded as hypotheses or inferences, to be tested by experimental and statistical science.

In a treatise where current statistical data play so important a part, the permanence of the work presents a peculiar problem. Data which are now up to date may be considered out of date five or ten years hence. The writer of a text in pure theory faces no danger that charts

and figures will become out of date, because he makes no use of them, or at most does so sparingly. But in a quantitative treatment, revision of material is more necessary. Recent data are more desired than remote data. But although data may change and statistics may require revision, nevertheless, *the fundamental thing is the whole approach to the science which underlies all data and statistics.* The method, the content, the body of principles, are the aspects of the treatment which have permanent value. However temporary some of the data may be, it is the significance of the data, of the method of using it for developing the science of economics, and of the meaning which it supplies for the theories of economics, which has the qualities of permanence.

At present, economics is flooded with the piecemeal literature of the many sided developments of the science. Out of this inchoate mass, a synthesis has been made. The new has been consolidated with the old. Widely diffused data have been assembled and interpreted. The presentation has endeavored to keep the style, the outline, and the selection of material, in a form suited to place modern economics within the reach of the student and the general reader. The purpose has been to make the introduction to economics teachable and understandable, as well as comprehensive and fundamental.

The writer wishes to express deep appreciation of suggestions and criticisms made by all those who have taken an interest in the preparation of the volume. He is indebted particularly to Dr. U. G. Weatherly of Indiana University for suggestions on some of the more important chapters of the work. Professor Seba Eldridge of the University of Kansas has read the entire manuscript, and has offered invaluable criticisms of form and content at every stage of the treatment. My wife has collaborated on the entire work, and has been my main reliance in securing clarity of thought and expression.

LIONEL D. EDIE.

January 3, 1926.

CONTENTS

PART I

INTRODUCTION

CHAPTER I

INTRODUCTION	PAGE 1
The Scope of Economics—Wealth and Economic Goods—Production, Consumption, Exchange, Distribution.	

CHAPTER II

THE HISTORICAL BACKGROUND OF ECONOMIC SOCIETY	7
Stages in Economic Evolution—The Primitive Technology of Production—The Significance of Prehistoric Economic Culture—The Age of Metal Tools—The Transition to the Machine Age.	

CHAPTER III

THE HISTORICAL BACKGROUND OF ECONOMIC SOCIETY (<i>Continued</i>)	22
The Inventions of the Industrial Revolution—The Economic Development of the United States to the Civil War—The Economic Development of the United States Since the Civil War—The Spread of the Industrial Revolution Throughout the World—World-Wide Industrialism.	

PART II

PRODUCTION AND CONSUMPTION

CHAPTER IV

THE THEORY AND NATURE OF PRODUCTION	39
The Meaning of Production—The Measurement of Production—An Index of Production—Indexes of Major Branches of Production—The Net Value Product—The Size of the National Income—Production Per Capita—Production Per Worker—Main Types of Economic Fluctuation—The Technology of Production—The Division of Labor, or Specialization—Standardization—The Automatic Machine and Quantity Production—The Productive Character of the Machine.	

CHAPTER V

PROBLEMS OF PRODUCTION	58
The Localization of Industry—Production, and Conservation of Resources—Coördination of the Specialized Machine Processes—The Factors in Production—The Entrepreneur—Large Scale Production—Economic Significance of Power—Science, Research, Invention—The Incentives to Invention and Discovery—Business Research—The Significance of Scientific Research for Production Theory.	

CHAPTER VI

PRINCIPLES OF CONSUMPTION	PAGE 79
The Meaning of Consumption—The Measurement of Consumption— What is Consumed?—A Factual Analysis of Food Consumption—The Main Types of Fluctuation in Consumption—The Division of the Con- sumer's Dollar—A Descriptive Study of Consumption.	

CHAPTER VII

PROBLEMS OF CONSUMPTION	92
Consumption a Matter of Making Choices—The Freedom to Choose Modified by the Economic Conditions of the Time—Consumers' Choices Affected by Technology of Production—Consumers' Choices Affected by the Workings of the Price System—Money-making by Guiding Con- sumers' Money Choices—Guidance of Choices by Private Business—The Guidance of Choices by Public Agencies—The Unconscious Evolution of Choices—Ideal Standards versus Actual Standards—Population and Standards of Living—Welfare and Consumption—Conclusion.	

PART III

VALUE AND EXCHANGE

CHAPTER VIII

VALUE THEORY	113
The Value Concept—Diminishing Utility and Marginal Utility— Scarcity, Utility, and Value—Price and Value—Disutility Balancing Utility—Value and Inequalities of Purchasing Power—Opportunity Cost—Margin of Consumption—Complementary Goods—Derived Value —Supply and Demand.	

CHAPTER IX

SUPPLY AND DEMAND	125
The Meaning of Supply and Demand—The Laws of Supply and De- mand—Competitive Conditions Assumed—The Variations in Demand— The Assumption of One Price—The Elasticity of Demand—The Varia- tions in Supply—Variable Supply at Increasing Cost—Variable Supply at Decreasing Cost—Variable Supply at Constant Cost—Variable Sup- ply and Joint Cost—Fixed Supply—Overhead Costs—Normal Cost and Normal Price—Monopoly Value—The Evolution of Value Theory.	

CHAPTER X

PROBLEMS OF THE MONEY ECONOMY	144
The Meaning of the Money Economy—Differential Gains and Social Gains—Pecuniary Supply and Demand—Price Movements—The Prin- cipal Time Variations—Normal Equilibrium and Abnormal Disturb- ance—Changing Price and Volume of Sales—A Reverse Statement of Supply and Demand—The Money Economy.	

CHAPTER XI

PROBLEMS IN PRICING	166
An Extension of Price Theory—Valuation of Corporate Securities for Purposes of Investment or Speculation—Valuation of Public Utilities for Purposes of Rate-making—Valuation for Purposes of Price Fixing— Valuation for Purposes of Taxation—Valuation for Miscellaneous Pur- poses—Competition and Price Practices—Abstract Competitive Price	

versus Reasonable Price—Price Policies and the Tendency Toward Monopoly—Monopoly and Class Price—Monopoly Price and What the Traffic Will Bear—Monopolies and the Steadying of Prices—Mechanism for Exertion of Monopoly Influences on Price Policies—Limits to Monopoly Influences on Prices.

PART IV

DISTRIBUTION AND RELATED PROBLEMS

CHAPTER XII

THEORY OF PROFIT AND RISK TAKING	194
Profit in the Pure Economic Sense—Profit Viewed as a Residual Share—Profit Under Conditions of Static Equilibrium—Profit as Related to Risk and Ability—Pure Profit in Final Analysis—Business Profit and Modern Accounting—Differences in Profits Among Different Concerns—The No-Profit Group—The Central Profit Group—The Excess Profit Group—The Representative Firm and the Representative Profit Area—Cost, Price, and Profit Groups—The Doctrine of Necessary Profit—Risk Taking and Insurance—Risk Taking and Speculation—Conclusion.	

CHAPTER XIII

PROFIT AND BUSINESS PROBLEMS	221
Profit, Money, and Prices—Producing Goods versus Producing Profits—Consequences of the Dominance of Pecuniary Profits—How Profit Affects Production—Profit and Property Valuation—Profit and Wages—Profit and the Consumer—Profit and Inflation—Profit and Government—Profit, Surplus, and Dividends—The Profit Motive and Social Well-being—Conclusion.	

CHAPTER XIV

PRINCIPLES OF CAPITAL AND INTEREST	247
Some Definitions and Distinctions—Development of a Theory of Interest—Interest a Price Governed by Supply and Demand—Gross Interest Distinguished from Pure Interest—Capital Under the Corporate Régime—Capital Values and Property Rights—Capital Values in the Going Concern—Marginal Saving and Saver's Surplus—Marginal Productivity and Producer's Surplus.	

CHAPTER XV

STATISTICAL ANALYSIS OF CAPITAL AND INTEREST	267
The Estimated Value of the National Wealth—Composition of the National Wealth—The Growth of Capital—Relative Capital Wealth of Various Nations—Fundamental Causes of Fluctuations in Supply of Capital—Fundamental Causes of Fluctuations in Demand for Capital—Effect of Variations in the Interest Rate upon Supply and Demand—Principal Types of Fluctuations of Interest Rates—Capital Accumulation by Various Income Groups—Uses Made of Savings—Share of National Income Going to Interest—Share of the National Income Saved Annually.	

CHAPTER XVI

PROBLEMS OF CAPITAL AND INTEREST	287
The Overhead Burden of Capital Equipment—Effect of a Different Distribution of Income upon Savings—What is the "Right" Rate for Banks and the Money Market?—Coördinating Capital with the General Economic Process—Conclusion.	

CHAPTER XVII

PRINCIPLES OF LAND RETURNS	PAGE 295
Fundamental Definitions and Concepts—The Valuation of Land—The Demand for the Uses of Land—The Supply of the Uses of Land—The Differential Aspect of Land—The Margin of Substitution—The Principle of Diminishing Returns—Increasing Costs and the Principle of Proportionality—Diminishing Returns and Size of Management—Diminishing Returns and Growth of Population—The Intensive and Extensive Margins—The Scarcity Aspect of Land Returns—Land Returns and Cost of Production—Value Appreciation and Uncearned Increment—General Point of View.	

CHAPTER XVIII

PROBLEMS OF AGRICULTURE	320
Balance in Agricultural Relations—The Balance of Farm Income with General Income—The Balance of Farm Accumulation of Wealth—The Balance of Population between Agriculture and Industry—The Balance in Production between Agriculture and Industry—The Balance of Farm Prices with Other Prices—Land Ownership and Tenancy—Taxation of Farm Land—Transportation of Farm Products—Marketing of Farm Products—Agricultural Credit—International Agricultural Relations—Farm Management—Conclusion.	

CHAPTER XIX

WAGES OF LABOR	346
The Nature of Wages—The Wage Share in Distribution—Theories to Account for the Share of the National Income Going to Wage Earners—Marginal Elements in Wage Determination—The Dependence of Wages upon the Other Factors in Production—The Value of Labor Derived from the Value of Its Products—Conclusion.	

CHAPTER XX

WAGE CONDITIONS AND PROBLEMS	363
Proportional Importance of Labor and Other Factors—The Trend of Real Wage Income—Real Wages Compared with Production—The Standard of Living and Wages—Problems of Cost of Living Wages—Financial Incentives—Non-financial Incentives—Bargaining Power and Wages—Habit and Custom in Wage Determination—Standardization of Wage Rates—Wages and the Ability of the Individual—Education—Hazards and Unattractiveness—Conclusion.	

CHAPTER XXI

POPULATION, IMMIGRATION AND WAGE CONTROL	388
The Effort to Control Wages—Wage Control and the Business Cycle—Are Rising Wages a Cause of Rising Prices?—How Can Wages be Increased?—Wages of Women—International Wage Comparisons—Economic Aspects of Immigration—The Population Theories of Malthus—Problems in Population—Conclusion.	

CHAPTER XXII

EMPLOYER AND EMPLOYEE RELATIONS	417
The Job—Fluctuations in Unemployment—Hours of Work—Fatigue in Industry—Environment—Power and Status—Unions—Industrial Peace—Conclusion.	

CHAPTER XXIII

INEQUALITIES OF OWNERSHIP AND INCOME	PAGE 442
Diffusion of Ownership—Effort versus Ownership in Distribution—Personal Inequalities of Property Ownership—Personal Inequalities of Income—The Institutional Basis of Inequalities in Fortune—The Corporation as a Property Institution—Inequalities of Fortune Due to Unequal Privileges—Monopoly Privileges a Cause of Inequalities—Unforeseen Chance as a Cause of Inequalities—Inequalities of Fortune Due to Unequal Abilities—Conclusion.	

CHAPTER XXIV

PRINCIPLES AND PROBLEMS OF MANAGEMENT	464
The Size of Management—Classification of Types of Management—The Evolution of Forms of Combination—The Mechanism of Corporate Management—Reasons for the Combination Movement—The Advantages of Big Business—The Part Played by Promoters—Successes and Failures in Combination.	

PART V

MONEY, CREDIT, AND BANKING

CHAPTER XXV

MONEY AND CREDIT	493
Evolution of the Acceptability of Money—The Qualities of a Good Money—Reasons for the General Acceptability of Paper Money—Coinage—Kinds of Money in the United States—Legal Tender—The Functions of Money—The Gold Standard—Other Metal Standards—The Paper Standard—The Controversy over Standards—Scarcity, Stability, Production—Supply of Money—Demand for Money—The Value of Money—The Importance of Price Fluctuations.	

CHAPTER XXVI

PRICE MOVEMENTS	525
The Price Index as a Measuring Device—The Secular Trend of Prices—The Trend of Gold Money Supply—The Cyclical Movement of Prices—The Price Movements of the World War Period—Inflation and Deflation in the United States Since 1913—World Inflation and Deflation Since 1913.	

CHAPTER XXVII

BANKING PRINCIPLES AND PRACTICE	553
The Classes of Banking Institutions—The Function of Commercial Banking—Instruments of Bank Credit—Bank Activities: Discount, Deposit, and Issue—Banking in the United States before the Civil War—Banking in the United States from the Civil War to 1913—The Administrative Mechanism of the Federal Reserve System—Reserves—Discounts—Federal Reserve Notes—Federal Reserve Bank Notes—Clearance—Fiscal Agency Duties—Members Other Than National Banks—Agricultural Credit—Proposals for Regulation of Money and Prices—Conclusion.	

CHAPTER XXVIII

BUSINESS CYCLES	PAGE 579
The Meaning of the Business Cycle—Duration of Business Cycles—Phases of the Business Cycle—Some Major Factors in Cyclical Changes—Some Theories of Business Cycles—The Stabilization of Business—Summary.	

PART VI

INTERNATIONAL ECONOMIC RELATIONS

CHAPTER XXIX

THE BALANCE OF INTERNATIONAL PAYMENTS	612
The Nature of International Payments—Demand and Supply of Foreign Exchange—The Composition of the Balance Sheet of the United States—Historical Significance of the Balance Sheet of the United States—Classes of Bills and Documents—Methods of Financing Foreign Payments—The Exchange Markets—Correspondent Banks and Foreign Deposits—The World Balance—Par of Exchange Under the Gold Standard—Automatic Correctives of Wide International Differences—Qualifications of Exchange Theory—Some Fundamental Considerations.	

CHAPTER XXX

MONEY AND FOREIGN EXCHANGE SINCE 1914	632
The Par of Exchange Under Irredeemable Paper—Gold Prices of Commodities—Gold Shipments and Automatic Correctives—Tables of Exchange Rates and Prices—Fluctuations of Exchange Rates—Automatic Correctives of Fluctuations—Divergence of Export Prices from Domestic—The Stabilization of Exchange—The Place of Money and of Government in International Economics.	

CHAPTER XXXI

THE EXPORT OF CAPITAL	652
The Importance of the Machine Technique—The Nature of the Investment Process—Effects of Foreign Investment upon Foreign Trade—Economic Functions of Government in Export of Capital—The Spread of the Machine Technology Throughout the World—Benefits and Dangers of the Export of Capital.	

CHAPTER XXXII

THE PRINCIPLES OF INTERNATIONAL TRADE	664
The Principle of Comparative Advantage—The Principle of Mutual Advantage—Geographical Distribution of Trade—The Commodity Distribution of Trade—The Relative Importance of Foreign and Domestic Trade—Some Applications of the Principles of Advantage—International Production and Mutual Interdependence.	

CHAPTER XXXIII

THE INTERNATIONAL ORGANIZATION OF PRODUCTION	685
The Principle of Pecuniary Advantage—Protection and the Tariff—Free Trade—The Method of Tariff Making—Recent Tariff Tendencies—The Tariff and the Cost of Living—The Tariff and Agriculture—The Tariff and Prosperity—Trade Bargaining and Discrimination—Agencies of Foreign Trade Competition—The Control of Essential Raw Materials.	

PART VII

GOVERNMENT AND TAXATION

CHAPTER XXXIV

TAXATION AND THE PRODUCTIVE FUNCTIONS OF GOVERNMENT	PAGE 707
The Productive Character of Government Activities—Increase of Government Expenditure—Public Revenue Other Than Taxation and Public Credit—Tests of Justice in Taxation—The General Property Tax—Corporation and Business Taxes.	

CHAPTER XXXV

TAXATION AND THE PRODUCTIVE FUNCTIONS OF GOVERNMENT (<i>Continued</i>)	725
The Sources of Federal Revenue—Internal Excise and Consumption Taxes—Customs Duties, or the Import Tariff—Income Taxes—War and Excess Profits Taxes—Inheritance and Gifts Taxes—The Increase of Public Debt—The Fiscal Budget—The Shifting and Incidence of Taxation—Conclusion.	

PART VIII

ECONOMIC CONTROL

CHAPTER XXXVI

PUBLIC CONTROL	745
Economic Adaptation—Public Control—General Regulation of Business—Governmental Control of Labor—Reform—Public Opinion and Public Control.	

CHAPTER XXXVII

ECONOMIC RADICALISM	769
The Economic Difficulties Confronting Socialism—The Difficulties of Socialistic Production—The Difficulties of Socialistic Consumption—The Difficulties of Socialistic Distribution—The Difficulties of Socialistic Value and Exchange—Conclusion.	

CHAPTER XXXVIII

ECONOMIC DEMOCRACY	780
Works Councils—Labor Unions.	
INDEX	795

FOREWORD

By

WESLEY C. MITCHELL

Director of Research, National Bureau of Economic Research

Economics started with the discussion of practical problems, such as lending at interest, just prices, abuses of coinage, the international flow of the precious metals, labor policy, and poor relief. By the Physiocrats and Adam Smith these miscellaneous discussions were given a measure of unity and system. Ricardo pressed further in the same direction. In his hands political economy became a "science," composed of "laws" arrived at mainly by "deduction," but supposedly capable in large part of "inductive verification," and certainly applicable to the guidance of policy. The first text book of economics, published by James Mill in 1821, pushed this view of the subject to extremes, demonstrated its theorems in a manner reminiscent of geometry, and scarcely mentioned practical applications, though the author was a radical reformer who thought science should be utilitarian. Mill's more famous son shared most of his father's conceptions, but when his turn came in 1848 to write a book on economics, he deemed it wise to combine the discussion of theory and practice. His treatise lived up to its title: "Principles of Political Economy with some of their Applications to Social Philosophy." Later text books and treatises have oscillated between the models set by the two Mills. Among the recent introductions to economics there are books as rigidly confined to "pure theory" as James Mill's *Elements*, and books which lay even heavier emphasis upon practical applications than did John Stuart Mill's *Principles*.

Since 1848, the subject itself has become more difficult to introduce to laymen on either plan. The parent stock of classical political economy has split into several types of theory which no two experts classify alike. Marginal analysis, neo-classicism, the psychological school, pecuniary logic, institutional theory, welfare economics are some of the names given to some of the recognizable types. While the differences which set off these varieties are primarily differences concerning the relative importance of problems or methods, it is hard to find a corps of doctrines which can be presented to the public as accepted by all authorities. The wider his intellectual sympathies, the more does the writer of a new text feel that he is making, tacitly or explicitly, invidious choices among the types of theory which are candidates for recognition.

Nor can economic theory in any form claim to represent economic science as confidently as it could in the days of James or John Stuart Mill. Much of the best constructive work done by contemporary economists is concerned with practical problems. Corporation finance, marketing, taxation, labor problems, business cycles, farm economics, conservation, transportation, social insurance—one might make a long list of topics in which the increasing thousands of professional economists are “specializing.” Of course “specializing” might mean the application of certain established laws to numberless special cases. A classical economist of Ricardo’s generation would have taken that meaning for granted. But few of our specialists find ready-made theories which they can apply to their problems. One who reads monographs usually gets the impression that their writers have made slight use of economic theory. On the contrary, one often has an uneasy feeling that the conclusions of the monographs call for revisions in the theoretical treatises.

Both the experimenting with various types of economic theory and the intensive study of practical problems without much heed to received doctrine are signs of intellectual vigor. They are incidents in that great process of trial and error by which mankind is slowly acquiring knowledge of itself. But progress, even scientific progress, is attended by confusion. No economist can keep abreast of the times. The specialists themselves need to be introduced to the subject afresh at intervals which grow shorter as progress in other fields than their own becomes more rapid. And the very circumstances which make it difficult to write a good introduction to economics make the need of a good introduction more pressing.

Professor Edie’s effort to supply this need should be particularly helpful, because he has tried to present economics, neither as a body of abstract principles, nor as a series of separate problems, but as a growing body of organized knowledge about one aspect of human behavior. The world he observes and analyzes is the world in which we are living together, coöperating and competing with each other. To make his observations accurate he relies largely upon statistics. To guide his analysis he draws upon the results of much monographic work as well as upon the varied stores of economic theory. There is no suggestion of a finished state either in economic science or in economic institutions. Professor Edie shows us how to acquire knowledge rather than what to believe.

Divergent as are the ideals of what an introduction to economics should offer, I think that Professor Edie’s work will commend itself to a wide public. I am sure that every teacher who adopts this book will learn much from it himself, and that every layman who reads it will find that economics, even in its present stage, makes life more intelligible and more interesting.

PART I

INTRODUCTION

CHAPTER I

INTRODUCTION

The Scope of Economics.—Economics deals with three major classes of problems: *physical, pecuniary, and social*. The physical problems have to do with the producing, exchanging, and consuming of tangible commodities; the pecuniary, with the gaining and spending of money incomes; the social, with the making of both tangible commodities and money incomes contribute most to human welfare. The physical and pecuniary aspects of the subject are preliminary to the most vital aspect, the human consequences. The supreme test of material production and of monetary gain must be the human test.

From the physical standpoint, economics may be defined as *the science which deals with the wealth-producing and wealth-using activities of man*. Economics studies the production of concrete goods and the rendering of definite services. It investigates the conditions governing the growing of wheat, the manufacturing of flour, the baking of bread, the mining of coal and iron, the transportation of copper and steel, the construction of bridges and buildings. Likewise, economics studies the consumption of tangible goods, of food, clothing, automobiles, houses. In both production and consumption, economics analyzes man's struggle with nature. Nature contains certain resources. Man attempts to appropriate these resources for his own sustenance and enjoyment. He wrests raw materials from nature, fabricates them, transports them, consumes them. From start to finish he deals with things, goods, products. Economic endeavor aims to make nature contribute the largest possible amount of goods to the satisfaction of human wants.

From the pecuniary standpoint, economics may be defined as *the science which deals with the "money-making" and "money-spending" activities of men*. These activities move in terms of prices. Economics is a study of *human behavior from the standpoint of price*. All business is a series of contracts of purchase and sale in which prices are quoted and paid, and money passed from hand to hand. The grower of wheat cares for the physical product only in so far as it will sell for a good

price and bring him a money return. The laborer turns out product only because of the money wage which he receives. The manufacturer maintains output because thereby he hopes to make money profits. The consumer obtains commodities only by the spending of money. From beginning to end, the winning and using of dollars is the guiding feature of economic life. Economic endeavor aims to obtain the maximum number of dollars of gain from every transaction. The arts of pecuniary gain direct the arts of physical production.

From the social standpoint, economics may be defined as the *science which deals with making material product and pecuniary advantage contribute most to human welfare*. Economics cannot restrict itself to a cold and indifferent analysis. Not that economics should be merely sentimentalism, but that it should be a truly human science. A strict neutrality on the ethical import of economic analysis cannot possibly be maintained, for every step in economic analysis carries an ethical implication. If ethical implications are inevitable, everything is to be gained by being frank and outspoken about them. The ethical assumption, in the broadest sense, which permeates economics is that both product and money should be organized to yield the best kind of life to the community. Every economic institution must subject itself to the test of whether it results in a clear social gain.

To condense our threefold conception of the scope of economics, we may say that economics is the science which deals with *the wealth-getting and wealth-using, the money-getting and the money-spending, and the welfare-promoting activities of man*.

All three of these phases of economics rest upon the mental experiences of men. They have a common basis in the psychological reactions which accompany them. This psychological basis has commonly been expressed as a relationship between two great factors, namely, *wants and efforts*. Economic wants are the driving incentives to activity. They are the objectives which lure men on to sustained productive effort. The satisfaction of wants is the culmination of the economic process. The subjective gratification derived from meeting wants induces men to engage in productive enterprise. In order to satisfy these wants, we find it necessary to labor and toil. Some of this effort is enjoyable for its own sake, much of it is not enjoyable under present conditions. Most of modern work would never be done for its own sake. The bulk of effort would never be undertaken for the joy of the effort itself. There must be some strong ulterior reward to pull men into sustained toil. This ulterior reward is the satisfaction of wants. By labor, men seek to gratify their desires. The economic process is a subjective balance between wants and the means of meeting those wants, between the disagreeableness of toil and the agreeableness of gratifying one's desires, between the pains of labor and effort and the pleasures of consumption. This subjective relation between ulterior reward in the form of want satisfaction, and the effort required to gain ulterior reward, pervades all elements of economics.

Wealth and Economic Goods.—Only a limited fraction of the physical universe can be called economic goods. The essential characteristics of economic goods are *scarcity and utility*.

Utility is the capacity to satisfy a human want. Before a good becomes economic wealth, some one must have a desire to enjoy it. The utility of a good is its “desirability” or “wantability.” Refuse, barren rock, ice at the north pole, obnoxious weeds, these are not economic goods, because they are not wanted, they satisfy no desire, they have no utility.

But scarcity must be coupled with utility before economic wealth exists. Limitation of supply is essential. The sunshine and the rain, the air and the wind, the water of the ocean and the sand of the desert, all of these may have utility, but the supply under ordinary circumstances is unlimited. There is no scarcity, and where there is no scarcity, there is no economic good.

Such unlimited goods are to be classed as *free* goods. Both economic goods and free goods have utility, but both do not have scarcity. The scenery of the mountains, the beauty of the sky, the atmosphere all about us, have utility, but until these things have also the quality of scarcity they are not *economic* goods. They are only *free* goods.

Wealth, as technically used, is synonymous with economic goods. Wealth may be owned either by private parties or by the government. Government-owned oil lands or forests possess both utility and scarcity. They are just as much wealth as the wells or forests of private owners. The national wealth is the aggregate of the economic goods owned by individuals and by the government.

Often the line between economic goods and free goods is not hard and fast. For instance, air is said to be a free good, but this is not true under all conditions. A renter who lives in the top story of a city apartment house pays higher rent than the parties living on the ground floor, because the fresh air and the sunshine at the top are superior. In other words, there is a scarcity of fresh air at a particular time and place, and under those conditions, air becomes an economic good. Water is plentiful, but scarcity of water available for home use leads to the installation of the water meter. Water in the home is an economic good in the modern city, but it was not an economic good for the pioneer who dipped as much as he pleased from an inexhaustible spring. Under modern complexities of living, free goods tend more and more to pass into the category of economic goods, because they become scarce with reference to some particular time or place. Scarcity is not a fixed and eternal quality, but a changing quality, reflecting every modification of economic institutions.

In popular thought, money is confused with wealth. A wealthy man is one who is supposed to be worth a great deal of money. Our multimillionaires are measured by the dollar sign. Our ambition appears to be to make as much money as possible. But it must be obvious that money is only a means of command over wealth. People strive with all

their might to gain money, because of what the money will buy. A man would starve to death if surrounded only by bank notes or gold coin. Money is a universal means of purchasing power. With it, one can obtain wealth. But the money itself is not the wealth.

Although money is not identical with wealth, nevertheless economic goods are distinguishable from free goods by the fact that the former can command a money price whereas the latter cannot. Water becomes an economic good just as soon as one can sell it to some buyer and obtain money in exchange. The pecuniary test of economic wealth is the ability of a good to be sold for money. And the amount of the wealth, in the pecuniary sense, will be the amount of money offered for the good. If a ton of brick is worth \$15 and a ton of platinum is worth \$1,000,000, the latter is vastly the greater amount of pecuniary wealth. From a physical standpoint, it is only a ton of wealth in either case. But in the money economy, the amount of money for which a good will exchange is the measure of the wealth which it represents. The more money the good can command in exchange for itself, the more wealth it represents.

But neither the view of wealth as economic goods nor the view of wealth as a pecuniary sum is an adequate conception of wealth. To make it adequate, we must introduce the social point of view. John Ruskin emphasized the fact that "there is no wealth but life"; and distinguished between "wealth" and "illth." J. A. Hobson declares, "Every piece of concrete wealth must be valued in terms of the vital costs of its production and the vital uses of its consumption."¹ From a social standpoint, the student who views our skyscrapers, our hundreds of millions of tons of coal, our hundreds of billions of dollars of national wealth, inquires: Does all this build character, health and happiness? Wealth is not merely tons of pig iron but social well being. Wealth is not the almighty dollar but human welfare. The acid test of wealth is the human test, and unless the output of factories and mines and the accumulation of gold and silver builds healthy and happy laborers and wise and noble consumers there is no wealth worthy of the name. There is no human wealth where dissipation and decay rule, no matter how rapidly the machines grind out their product or how filled the coffers are with money. Materialistic and mercenary gain is vicious unless it brings commensurate social and human gain to all elements of society.

Production, Consumption, Exchange, Distribution.—The economic process contains four important links. These are, to use the ordinary terminology, production, consumption, exchange, and distribution.

Production may be viewed either as the making and finishing of *physical goods*, or as the manipulation of price relations with a view to making a *money gain*, or as the activity of the *human organism* in adjusting itself to its physical and social environment. That is to say, it may be analyzed from the physical, pecuniary, or social viewpoint.

¹ *Work and Wealth, a Human Valuation*, p. 10.

Running through these viewpoints is the subjective notion that production is *the creation of utilities*. That is, *production is the effort so to shape and control goods that they may have increased capacity to satisfy human wants*. For a comprehensive analysis of production, it is necessary to take account of all these viewpoints. For certain purposes, one viewpoint will be more essential than others. For a study of the physical volume of production, it is necessary to emphasize the making of goods. For a study of business and profit, it is necessary to emphasize the price system and the money economy. For a study of human welfare, it is necessary to emphasize the social consequences of productive effort. For a study of value theory, it is necessary to emphasize the subjective aspect of the creation of utilities. These various viewpoints supplement each other; they do not involve any inherent or intrinsic contradictions. They are closely interrelated. And for a complete understanding of the meaning of production, they must be made an integral part of economic analysis.

Consumption sets the schedules of production. Producers turn out only what consumers desire to use up. Production schedules are set by consumption standards. Everywhere, producers are trying to discover the things which consumers want, and then to provide those things, and no other. Consumption may be viewed as a physical process of using up tangible commodities. It consists of the destruction through use of loaves of bread, of yards of cloth, of pairs of shoes. Consumption may also be viewed as the spending of money incomes. The pattern of consumption is set by the amount of money one has to spend and how one decides to spend it. But consumption may also be viewed as the process of building human personality and developing community well being. It may lead to vice, poison, and decay, or it may lead to character, health, and progress. Beneath these views of consumption stands the subjective view. Consumption is the enjoyment of the utilities which have been created in production. It is the satisfaction of wants by appropriation of the fruits of labor and effort. All of these views are essential for an adequate conception of the meaning of consumption.

But if production is the beginning of the economic process and consumption is the end, *there are nevertheless two intervening or connecting factors*. Before production can lead to consumption, goods must, as a general rule, have been exchanged between individuals, and shares in the product must have been assigned. These are the problems of *exchange* and of *distribution*.

Exchange deals with the laws governing the ratios at which goods of different kinds may be traded for each other. One man has produced shoes whereas his neighbor has produced cloth. Their problem is to exchange shoes for cloth. Throughout the economic system producers are making goods for others. The factory worker never expects to wear the specific pair of shoes he helps to make, or the self same yard of cloth he helps to weave. The farmer of today sells his wheat and buys flour made from some other farmer's wheat. Each year we have so

many millions of bushels of each of the cereals, so many millions of tons of coal and pig iron, so many millions of pounds of sugar, and these commodities must be exchanged at such rates as will satisfy the wants of individuals. *Value is this power which a good has to command other goods in exchange for itself, or the rate at which it will exchange for other goods.* Value theory is fundamental in economics, because it aims to explain the exchange relations between goods. It explains the process by which all producers turn over their output to individuals who want such commodities, and in return receive the kinds of commodities needed for their own consumption.

The values of goods are expressed in prices. That is to say, a bushel of wheat is exchanged for money, and the money in turn is exchanged for a pair of shoes. *Prices are the amounts of money for which goods can be exchanged.* This pecuniary aspect of value dominates all business transactions. Consequently, we find it necessary to supplement a study of physical exchange of goods with a study of pecuniary exchange. The emphasis in this respect is upon the part which money plays in the whole value system of modern life. The most significant part of value theory tends to be the part which shows the importance of money and prices in the whole wide universe of buying, selling, and exchanging.

Distribution deals with the sharing of wealth and income by different classes and individuals. By distribution, we do not mean marketing of goods. Rather, we mean the dividing of the national product so that each individual has a certain share. The landlord derives a share which we call rent. The capitalist derives a share which we call interest. The laborer derives a share which we call wages. The business organizer or enterpriser derives a share which we call profit. Our task is to study the forces governing the shares assignable to each of these factors. Moreover, personal inequalities of wealth and income appear on every side. The rich and the poor, the leisure class and the submerged tenth, exist side by side. Distribution theory provides an explanation of these personal inequalities. The subject may be viewed in its physical, pecuniary, social, or subjective aspects, just as production, consumption and exchange are viewed. Distribution is not only a sharing of *actual goods*, but is also a sharing of *money incomes*, and a division of *opportunity, leisure, and well-being*. In the chapters dealing with distribution, these various aspects of the subject are emphasized.

A broad perspective of the logical steps in economic analysis requires a correlation of production, consumption, exchange, and distribution. This time honored division of the subject matter gives a framework for detailed discussion. All phases of economic study may be fitted into these four great categories. Although many new developments have occurred in economics, nevertheless none of these is incompatible with the four basic classifications of subject matter which have been outlined.

CHAPTER II

THE HISTORICAL BACKGROUND OF ECONOMIC SOCIETY

The first step toward an understanding of economics is to know how modern economic society has come to be what it is. In attempting this task, the historian adopts the basic principle that every invention and every economic institution represents an accumulation of discoveries and achievements reaching back not merely into the nineteenth century but into the stone ages. The marvels of science and machinery in the twentieth century seem so far separated from the crude tools of antiquity that the temptation has commonly been to belittle the primitive material cultures and to dismiss them as belonging to an age of savagery.

The anthropologist has demonstrated, however, that instead of marveling at the crudities of the primitive peoples, we should marvel at the degree of advancement of their mental capacity and of their material equipment for making a living. What primitive man had to contribute to the growth of economic society is fully as important as what scientific man has to contribute in the twentieth century. Modern attainments are but the culmination of long lines of progress, and the original pattern of economic culture, created by the hand and brain of prehistoric man, has not been lost but continues to dominate the form and design of economic culture at the present day. The cumulative aspect of economic evolution emphasizes the importance of the earlier stages of the cumulative process as a key to the understanding of the modern stage.

This process of economic development includes three broad phases of growth: a technology of production, an organization of methods, and a standard of consumption. The dominating factor in this group is the technology of production, since both organization of methods and standards of consumption are an outgrowth of technology and a means of adaptation to it. Technology of production refers to the kinds of tools and implements which man knows how to make, to his skill of craftsmanship in the use of tools, and to his technical knowledge of the properties of matter and of the laws of applied science. The state of these industrial arts largely determines the kind of economic organization and system which prevails and the level which the standard of living and consumption attains. Everything in economic society centers around *the state of the industrial arts*, around the degree of advancement in the *technology of production*. The history of economic institutions runs largely in terms of this cumulative development of the applied science of tools and machines.

Stages in Economic Evolution.—Many attempts have been made to classify economic history into definite stages. The most common of these classifications divides history into five main stages: (1) the hunting and fishing, or *direct appropriation* stage; (2) the domestication of animals, or *pastoral stage*; (3) the *agricultural* stage of settled community life; (4) the stage of *handicraft* manufacture, with growth of towns, and limited growth of trade; (5) the *industrial* stage of machine manufacture, metropolitan populations, and complex development of commerce. This classification, and others which might be cited, are not without value. However, these more or less arbitrary divisions suffer from the danger of oversimplifying the processes of history. History can not be cut up into neat divisions. It is much truer to the nature of historical processes to adhere to the notion of cumulative growth of economic society, with immense variety and general defiance of hard and fast uniformity in rigid divisions and stages.

The technology of production, which has already been pointed to as the central force in economic evolution, may advantageously be viewed from this standpoint of cumulative growth. Starting with a discovery of the crudest form of tools, man gradually and tediously added bit by bit to his store of practical knowledge. His tool-making grew more and more complex over many centuries of time, and at last attained the most complex form of all, the machine. Modern technology is a machine technology, and dates approximately from the latter part of the eighteenth century. The technology of the tool takes its origin from a date roughly estimated as more than a thousand centuries ago. It took mankind more than a hundred thousand years to bring the tool technology up to the level of the eighteenth century; then the machine technique usurped the field and a little more than two hundred years of applied mechanical science have created the modern machine economy. More than ninety-nine one-hundredths of man's existence went to building up sufficient technical knowledge to enable him to invent the first modern machines. Thousands of crude discoveries, of progressive inventions, of growing bits of knowledge about the properties of matter, were prerequisites for the greater discoveries of applied science which ushered in the machine age. This stock of earlier knowledge, handed down from generation to generation, constituted the technological heritage of the race, and gradually reached a point which made possible the release of scientific imagination and inventive power which underlies modern economic society.

The Primitive Technology of Production.—For upwards of three hundred to four hundred thousand years, making a living was on a crude level not far removed from a mere animal existence. Clubs, wooden spears, stones accidentally shaped for easy cutting or for throwing, constituted the equipment of the race. Out of the suffering and struggle of this vast stretch of time evolved the first implement genuinely formed and fashioned by the hand of man,—the *coup-de-poing*, or fist-hatchet. This flint stone, chipped to a crude cutting and scraping edge,

without handle or attachment of any sort, was the first tool invented by the brain of man. Considering the meager background of the primitive mind and the difficulties under which the invention was made, we must rank the greatness of the event as of equal importance with the modern discoveries of electricity or chemistry. The achievement dates back approximately 125,000 years ago, and marks the beginning of what are known as the Stone Ages.

The ages of stone tools lasted in Europe until about 2000 B.C. The last 10,000 years of the period are called the New Stone Ages in recognition of certain marked advances over the forepart of the period, called the Old Stone Ages, but it is interesting to note that the greater part of the ages of stone tools—more than nine-tenths of the total period—belongs to the Old Stone Ages. During the vast expanse of time represented by this earlier part of the period, achievements in economic civilization were made which are of fundamental importance. The broad significance of these achievements is concisely stated by A. L. Kroeber as follows: "Many of the outlines of what civilization was ultimately to be had been substantially blocked out. Most of the framework was there, even though but a small fraction of its content had yet been entered."¹

A brief outline of the major achievements of the Old Stone Ages may be drawn up as follows:—

1. *Tools.* Refinement of fist-hatchet through sharpening by pressure rather than by chipping. Invention of implements of bone, wood, reindeer-horn and stone, such as needles, scrapers, knives, spears, hammers, chisels, wedges, harpoons, throwers, and daggers.

2. *Clothing.* Practice of sewing skins for clothing. Dress designed in part for protection from cold, and in part for ornament.

3. *Food.* Improvement of diet by introduction of cooked meats and of cooked wild vegetation.

4. *Fire.* Discovery of artificial methods of kindling fire, and of use of fire for cooking, for protection from wild animals and for relief from cold.

5. *Homes.* Use of caves and cliffs of river edges as houses.

6. *Art.* Development of high artistic skill, shown not merely in drawings on cave walls, but in the shape and design of tools, and in decoration of the weapons of hunting, fishing and fighting.

7. *Skill.* The definite fruition of the faculty of invention and of creative imagination. The elaboration of the skill of hand coördinated with brain. The close identification of art with work, and the clear connection of a sense of symmetry and beauty with craftsmanship. The accumulation of practical knowledge of the habits of animals and of the properties of matter.

The importance of these attainments is lost sight of if we dismiss this period as one of fruitless savagery and barbarism. The real mean-

¹ *Anthropology*, p. 179.

ing of the attainments is forcefully expressed in H. F. Osborne's observation that, "During this age, the rudiments of all the modern economic powers of man were developed."² Later inventions down through the brilliant mechanical discoveries of the machine age are properly to be viewed as but an elaboration and a refinement of these rudiments. New combinations and recombinations of the original basic elements have been made, but the astonishing feature is that so large a part of the later complex technique is after all merely an elaboration of these rudiments of primitive life.

With this preparation, a transition to a more complex technology of industry was possible. This new and growing technology is the distinguishing feature of the New Stone Ages, dating in Europe approximately from 12,000 to 2,000 years B.C. The main aspects of this progress may be briefly outlined as follows:—

1. *Tools.* Discovery of grinding and polishing as methods of sharpening tools encouraged a great increase in the variety of tools. In comparison with the stock in trade of a modern hardware store, the list of tools of these New Stone Age men was astonishingly complete.

2. *Spinning and Weaving.* Linen clothing supplemented that made from the skins of wild animals. "Every house had its loom," remarks the anthropologist,³ referring to a typical village of the period.

3. *Food.* Improved cooked foods were introduced to the human diet through the making of pottery from baked clay.

4. *Building.* Constructive and engineering skill was illustrated in the lake villages, pit-dwellings, log huts, wattle huts, fortified villages, gigantic tombs and gallery chambers, boats built from hollowed logs, stone mills for grinding grain, and factories for the making of stone implements.

5. *Agriculture.* The most significant of all attainments was the domestication of animals and the development of agriculture. As Shotwell observes, "The greatest social revolution of primitive mankind came about when man, settling on the soil instead of wandering, and so accumulating goods which required foresight, began to calculate for a future."⁴ Farming and peace displaced hunting, fishing, and pillage.

6. *Economic Organization.* *Productive capital* originated in the necessity of saving and accumulating farm equipment. *Property* took form in the ownership of fields, animals, and products. The act of settling down meant more peace and less war, more production and less exploitation, and by creating the necessity for protecting property and life, developed the authority and police power contained in the *economic functions of government*.

7. *Division of Labor.* Territorial division of labor resulted from local specialization in flint mining, manufacture of stone tools, cloth-making,

² *Men of the Old Stone Age*, p. 501.

³ John M. Tyler, *The New Stone Age*, p. 83.

⁴ James T. Shotwell, *The History of History*, p. 40.

pottery work, etc. Occupational division of labor resulted from separating tool-making and tool-using, from separating the duties of priests, medicine men, farmers, and chieftains, and from gradually reserving for women a place in the home, where they practiced the arts of spinning, weaving, and pottery.

8. *Barter*. Marvin states, "The New Stone Age trader must have pushed the science of barter to the uttermost limits short of the invention of a circulating medium, if indeed some crude form of currency was not already in vogue."⁵

All of these achievements were realized before written history begins. In these distant centuries, the character of economic civilization was being shaped. Prehistoric man worked out the architectural design of modern economic institutions.

The Significance of Prehistoric Economic Culture.—Man today brings to the art of production two primary forms of equipment,—his equipment of intellectual capacities, instincts and emotions, and his equipment of technical knowledge. It is of central significance that his mental equipment was completed in the days of primitive man, and that the basic elements and rudiments of his technical equipment for production were also highly perfected in that early period. There has been an increase in knowledge and training in the last ten or twenty thousand years, but no increase in brain power or capacity of the mind. The feelings and impulses of the modern factory worker are fundamentally the same as those of the primitive toiler using implements of stone. This mental equipment which was completed in the primeval environment of our ancestors is now plunged into the humdrum environment of the factory and the mill. The maladjustment between mental equipment and the rigorous discipline of the factory is manifested in monotony, fatigue, unrest, bitterness, and sabotage. *Our problem today is how to conduct the machine age with a mental equipment which was originally suited to the stone age.*

The completeness of the basic elements and rudiments of man's technical knowledge is equally important. The elements of economic organization were taking form around the elements of the primitive production technology. The industrial arts and the economic arts were taking distinct shape and pattern, and economic civilization has continued the pattern thus begun for it.⁶

This technological pattern derived its outlines from a vast fund of primitive knowledge of the laws of nature and the properties of matter. For instance, in the selection of wood and stone for building or for tools, or of materials for weaving, pottery and basket-making, a multiplicity of details of hardness, shape, form, cut, tensile strength, resistance of material, abrasion, friction, heat, flexibility and design had to be learned. The hunting and the domestication of animals imply a familiarity with

⁵ F. S. Marvin, *Progress of History*, p. 44.

⁶ James T. Shotwell, *The History of History*, p. 11.

their habits, with their anatomical structure, and with the qualities of their hides and flesh. Plant cultivation proceeds from an acquaintance with elementary botanical facts, and with the nutritional, medical, and poisonous qualities of individual plants. The elements of applied mechanics and of physics were involved in the primitive use of levers, wedges, inclined planes, and weights. Motor habits and skills were learned and perfected. Dexterity of hand and arm in weaving, pottery-making, tool-making, and the other industrial arts is the essence of advanced craftsmanship. The scope and complexity of these primitive powers of dexterity are as remarkable as their accuracy and artistic excellence. In all these respects, primitive man possessed the basic elements of the technology of production and revealed a surprising mastery of the rudiments of technical equipment for economic civilization.

The Age of Metal Tools.—The ages of stone tools lasted in Western Europe until about 2000 B.C. But while Western Europe was at this stage of history, the peoples of Asia Minor and of Egypt were making epochal extensions of the rudimentary stone age knowledge. Men in the Nile valley began to smelt and use metal about 4000 B.C. The earliest implements of metal were probably copper needles. The chief uses of copper at first were for ornament, but once its properties were discovered, tools and weapons of the metal were invented in wide variety. Copper, however, suffered from the defect that it was too soft and malleable to be a satisfactory raw material for tools. Necessity and accident combined to bring about the discovery that in mixing copper ore and tin in the ratio of nine parts to one, bronze, a harder metal, could be made. The technique of metallurgy thus came into use, and the age of metal technology expanded immensely the possibilities of the industrial arts.

By about 1300 B.C., the use of iron had been discovered in Asia Minor. Thereafter, the iron technology gradually supplanted the bronze throughout the Orient. Meantime, bronze had spread from its place of origin in the Eastern Mediterranean regions to the European peoples of the Western Mediterranean regions. Europe owed most of its bronze technology to knowledge borrowed from the near Orient. When the use of iron was adopted in the Orient, it too spread westward in the thousand years B.C., and permeated the greater part of Western Europe. The age of metal tools thus extends from about 4000 B.C. in the Orient and about 2000 B.C. in Western Europe, down to the industrial revolution of the eighteenth century. The metal age was a continuation and an amplification of the pragmatic knowledge and of the economic organization which had been originated and mastered in its rudiments in the previous ages of stone tools and implements.

During the stretch of time which covers the age of metal tools, a dozen or more great economic civilizations rose to brilliance and splendor and sank into ruin and decay. Beginning with the rise and fall of Egypt and following on to the rise and fall of the Roman Empire, a

rhythmic appearance and disappearance of great peoples is recorded. Within this span of history the stage of civilization was held for a few centuries by Babylonia and Assyria, by Phœnicia, Palestine, Persia, Crete, Greece and Rome. Although these peoples disappeared in the passing of centuries, nevertheless their culture represented a most important extension of the more rudimentary knowledge of previous ages. These extensions of technique of economic life are incorporated in the present economic order.

On the technological side, a great extension of tool making and of the metal trades grew out of the use of metals instead of stone. In the city of Rome alone there were as many as eighty different trades. The invention of the potter's wheel—the antecedent of the modern lathe—expanded the ceramic arts to a major industry. The adaptation of the wheel to the axle revolutionized land transportation, magnified the possibilities of travel and commerce, and effected new tactics of chariot warfare and imperial expansion. Glass-making, paper-making, and refinements in spinning and weaving were achieved. Sea-going ships, with sails, or with oars manned by galley slaves, gave navigation an unprecedented expansion, facilitated long distance communication, and gave rise to naval warfare. House building on architectural lines and by the technique of masonry became regularly established. Engineering and surveying achievements were exhibited in vast projects of irrigation, road-building, and construction of temples, pyramids and tombs. Metal weapons led to an intensive cultivation of warfare and supported vast militaristic undertakings.

This growth of technology was accompanied by a growth of economic organization. As the division of labor increased from the use of the new tools, the exchange of goods between specialists increased and stimulated a wide increase in trade. For this growing contact of peoples, communication and record keeping were indispensable and the invention of the alphabet and of writing was therefore of deepest importance. Exchange of goods demanded a medium of exchange, and resulted in the use of the metals as money. Money marked the introduction of a new price system of exchange, opened new possibilities of imperial taxation, facilitated the sharpest inequalities of wealth and accentuated the luxury, avarice and cruelty of the nobility. The expansion of commerce led to the creation of trade routes, connecting all peoples bordering the Mediterranean, and bringing about the interchange of technological knowledge between Oriental and European countries. *This diffusion of knowledge has been deemed by many authorities the most potent cause of progress in all phases of economic life.*

The new organization of labor rested upon the major division of society into two great classes,—nobility and slaves. The middle classes of citizens, artisans and freemen led a precarious existence, buffeted, as they were, between the upper and the lower strata of society. The slave was the ancient substitute for machinery. As hewers of wood, drawers of water, oarsmen for the ships, or miners for metal digging, slaves

did the drudgery and the heavy work. Conservative estimates put the slaves of Greece at about one-third the total population. In the Roman order, the slaves outnumbered the freemen.

From Egypt to Rome, feudalism in one form or another prevailed. Under feudalism, land was the chief form of property, and the ownership of great landed estates was the surest mark of nobility and wealth. Serfs and slaves performed the bulk of the labor on feudal estates. From time to time small scale, independent farming struggled bravely to establish itself, but always in the course of a little time the grim hand of a landed aristocracy tended to grasp all land worth grasping. On the estates, groups of free artisans and of slave craftsmen undertook the skilled tasks. Workshops and small factories appeared here and there in the higher levels of these civilizations, but the dominant unit was the feudal household, cared for by slaves, serfs, and freemen. The crafts in Egypt organized a form of gild, and in Greece and Rome craft gilds became of marked importance, foreshadowing the perfection of gild methods which appeared in Europe at the end of the Middle Ages.

Where slavery exists the dis-esteem of labor extends to the freemen. Toil is a badge of inferiority. Hence in these economic societies the artisan and craft worker are commonly looked down upon. So far-reaching has this influence been that the great speculative scientists of Greece and Rome and the brilliant classical metaphysicists confined their thoughts to abstract science and disdained such applications of science to the work of the world as might have improved the industrial arts or brought about the invention of machines. Slavery enslaved science.

These metal civilizations became more and more urban as they developed. Cities existed side by side with feudal estates. Several Greek cities had a population of from 50,000 to 100,000, and Rome at its height had an estimated population of approximately 1,000,000. This urbanization of life rested upon a great expansion of the economic functions of government. The Pharaohs of Egypt were the first rulers in history capable of holding together a population of millions. Their discipline over the 100,000 laborers and slaves engaged in the building of the pyramids represented an unparalleled extension of political administration and economic power. The codification and administration of laws gave a great increase to the security of property and contract. Moreover, army and navy were used for purposes of economic imperialism. Force obtained fresh supplies of slaves, controlled trade routes, seized new mines or estates, and exacted taxes and tribute in the form of payments of food or other wealth from subject peoples. *Government thus served the double purpose of protecting the life and property of citizens and of exploiting the life and property of foreigners and slaves.*

New economic wants and new standards of consumption accompanied these phases of growth. These new satisfactions appeared in the fashions and textures of clothing, the varieties of food, the structure and furnishing of houses, the modes of amusement, the appreciation of the fine

arts, and the desire for higher education. The sharp division of classes was in part revealed in the creation of a leisure class, the elaboration of luxury and extravagance, the multiplication of dissipations and vices. The series of civilizations involved represent much brilliance of consumption among the wealthier classes, and outbursts of intellectual and artistic achievement which excite the envy of moderns.

However, in no instance was the endeavor to maintain a higher standard of consumption stable or permanent, and one reason lay in the unfitness of a tool technology of production for the task. A contempt for applied science and for manual labor blinded the great abstract scientists to mechanical inventions. The metal civilizations lacked an adequate material foundation for permanence.⁷

The Transition to the Machine Age.—Following the disintegration of the Roman Empire by about the fifth century A.D., there was an extreme development in Western Europe of the feudalistic manor. This institution was both economic and political. The manor was the economic factor and supplied the material foundation for the feudalistic or governmental factor. Under the manor, land was the chief form of property and lords were the chief owners of the land. The tillers of the land were in a state of serfdom, halfway between slavery and freedom. The serfs had to give a certain amount of labor regularly to the care of the lord's land and had to pay various forms of tribute in goods from their own petty holdings of land. The tools of farming were crude wooden plows constructed on an ancient model, sickles, scythes and rickety carts. The yield of wheat per acre was less than one-third of the yield today. The relatively few craftsmen sought security and a living by attaching themselves to the manorial estates. There was very little travel or communication. The manor was not entirely self-sufficing, but the small trade in such articles as salt or iron was of very slight volume in proportion to the total consumption of the manor. *The manor was a rural agricultural community characterized by isolation, localism, and stagnation.*

The manor depended upon protection which was derived from feudalism as a system of local government. The nobles, together with the churches, took over the economic functions of government in the absence of a competent national sovereignty. Feudalism was a military-legal institution, under which lords, peasants, and craftsmen bound themselves together for mutual aid and protection. It was an attempt at security of life and property necessitated by the breakdown of the Roman administrative system. Private warfare and pillage tended to rage throughout Europe, and at best the task of protection was very inadequately met even by feudalistic local coöperation.

The evolution of towns, interspersing the feudalistic monotony, began in about the eleventh century. The town economy owed its origin to the spread of commerce which followed upon the Crusades and the contact with the peoples of the East. *Trade created the towns.* "Town

⁷ See A. P. Usher, *Industrial History of England*, pp. 27-28.

economy is the organization of many villages and one town, so as to constitute a single economic unit. The town was the nucleus; the surrounding territory, with a radius of ten or twenty miles in which were located a score or more of villages, constituted the rest of the economic cell.”⁸

These towns had to win their economic freedom from unwilling lords and churchmen. In the forefront of this struggle for freedom was the new class of specialists,—merchants engaged in domestic and foreign commerce. Owing to their importance, the merchants practically constituted the government of the towns and provided security and order for the towns much as the feudal lords did for the country. Moreover, the need for safety of trade routes and for security of life and property in commerce required that the merchants organize on a large scale for protective purposes. In addition to handling municipal government for economic ends, the merchants organized for group action in the form of guilds. The essential privilege of the guild was the monopoly of trade within the town. This monopoly involved the minute and excessive restriction of freedom of competition, and the creation of a mass of special privileges, exclusive rights, and trade discriminations. Commercial organization further took the form of leagues of towns, of which the most famous was the Hanseatic League, with its trade and treaties influencing half the cities of the continent. A fundamental feature of all such leagues was the effort to overcome local tolls, tributes, and privileges by more comprehensive and large scale regulations and privileges. These great mercantile associations held as a prize possession the most important corporate franchises and trade charters that could be obtained.

The industrial side of the town economy was expressed in an intensive revival of craft manufacturing. Although in many fundamentals the craft technology of these towns was the same as craft technology in ancient towns, nevertheless there was at least one distinct and remarkable extension of economic life in the status created for labor by the organization of craft guilds. The status of the new craftsman was one of economic freedom under law. The status of the nominally free craftsman in the earlier period had been one of economic suppression, ground between the upper and lower strata of nobles and slaves. The new medieval craftsmen constituted a genuine middle class, with the power to assert their liberties and enforce their rights to a degree previously unknown in the annals of labor history. They often played a leading part in winning and maintaining the freedom of the towns and their rights of self-government. The craft guilds were empowered by municipal charter or by the crown to compel all workers within the trade of a town to become members, to serve a rigidly defined apprenticeship, to observe religious days, and to make goods of standard quality and under standard conditions. Like the merchant guilds, the craft guilds operated upon principles of monopoly, special privilege, and exclusion of out-

⁸ N. S. B. Gras, *Introduction to Economic History*, pp. 109-111.

siders. Minute details of wages, hours, prices and conditions of sale were regulated. Freedom of competition, which today is called the life of trade, was then looked upon as the death of trade. Nothing was more abhorrent to the mind of the gildsman than the notion of freedom of the worker to do as he pleased.

During the fifteenth century, the gild system began to give way to new forces in manufacture and in commerce. Merchant gilds were overpowered by the strong hand of a national government which imposed on a national scale restrictions and discriminations that superseded in large part the gild autonomy. Craft gilds were overpowered by the growth of the "putting-out" or "domestic" system of manufacture.

Under this new system of manufacture, the domestic capitalist commonly owned the raw material and marketed the goods, but allowed the worker to own his own tools, and to carry on spinning and weaving with the aid of his wife and children in his own cottage. The majority of workers owned some land around their cottages, and devoted part of their time to agriculture. Some groups of laborers worked in unsanitary homes and under most uncongenial surroundings. In occasional instances workers were huddled together much after the manner of the later factory system. Although domestic capitalism resulted in a variety of products, the principal line was woolen goods, and this industry made up about two-thirds of the total exports of England at the height of the system. The merchant capitalists became rich and powerful, and the concentration of capital in their hands prepared them as a class for the ownership of machinery and factories which came later under the factory system. Domestic capitalism was a kind of training school for the financeering required in factory capitalism. As for the laborers, they were scattered and unorganized. Their bargaining power as individuals was no match for the wealthy capitalists who employed them. They suffered constant injustice and oppression. Strong capitalists and weak laborers; ownership of material divorced from work; development of a capitalist class of merchant manufacturers—these were the leading features of the last stage of production before the advent of the machine age and the factory system.

Closely interwoven with this change in manufacturing was a far-reaching change in agriculture. Agriculture was the main occupation of the English laboring classes until after the middle of the eighteenth century. The serfdom which prevailed under feudalism was gradually eliminated and by the sixteenth century was a thing of the past in England. Money payments had displaced payments to lords in labor and goods, and travel and trade had brought freedom to the common man to go and come and to plan his life with some degree of independence. Labor became a free peasantry. At first these peasants worked small holdings which they rented or owned, but a gradual process of enclosure evicted the peasant tenant from his land, and tended to concentrate the lands in the hands of a few powerful landlords.

The enclosures were made to provide pastures for sheep, and sheep were grown because manufacturing demanded wool for raw material. A few laborers tending sheep cared for the same acreage of soil as formerly had given livelihood to many peasants. The supply of labor thus released from agriculture sought to earn a living by flocking into the expanding manufactures of the period. Much suffering was felt by the population in making this shift, and much rank injustice and exploitation entered into the process of transformation.

Sheep raising by no means entirely displaced crop growing, but where it failed to do so, a new technique of crop growing strengthened the same tendency to destroy the small land holdings of a free peasantry and to bring the land into the hands of wealthy landlords. If farms could be tilled on a fairly large scale, the landlords found that by taking advantage of a new technique of farming they could make much larger profits. This technique consisted of drainage, land fertilization, crop rotation, fence building, planting of new crops such as turnips, clover and improved grasses, and plant breeding. This new technique was adopted very gradually, but it is significant, for instance, that in the space of a century crop returns were doubled by better cultivation, and the weight of cattle and sheep was increased by half through improved breeding and feeding. On the other hand, the extermination of an independent peasantry was most unfortunate, and it is not at all certain that the material gains offset the human losses. *Broadly speaking, the system of agriculture had passed from one of farming for local subsistence into one of farming for the profitable supply of a market, and farm labor had passed from a status of independent peasantry to one of hired labor and tenantry.*⁹

These great changes in manufacturing and agriculture were paralleled by equally great changes in commerce and communication. From the Crusades in the eleventh century to the Industrial Revolution in the eighteenth century, there occurred throughout Europe an expansion of commerce and of foreign contacts which had the profoundest influences in disrupting the fixity and inertia of medieval institutions and, most important of all, in preparing the way for the basic changes of the Industrial Revolution itself.

The exchange of goods with the Orient demanded better trade routes and gave the impetus to a search for the Indies. Nationalistic rivalries for supremacy led the Europeans into an era of exploration marked by the careers of Prince Henry the Navigator, Marco Polo, da Gama, Columbus, Magellan, and many other romantic figures. Towns developed into cities from Genoa to Florence and from Antwerp to London, and such rivers as the Rhine became busy arteries of commerce. Colonization followed upon discovery and opened vast new possibilities for trade and exploitation. "A narrow local trade borne on rivers, through inland seas and along the coasts of the continent and its adjacent islands,

⁹ See W. C. Abbott, *The Expansion of Europe*, Vol. II, p. 346; also Gilbert Slater, *The Making of Modern England*, p. 25.

has been replaced by an oceanic commerce radiating into all parts of the world." ¹⁰

Commerce not only disintegrated the manor and the gild, but it brought into existence a new merchant class in the political and economic field, a class of capitalistic traders. To carry the burden of risk and investment, trading companies organized on the joint stock principle, thus inaugurating the modern era of corporate securities. The discoveries of precious metals in foreign lands gave Europe the materials for coinage and currency at a time when money was necessary for the maintenance of trade. The financing of trade called for borrowed funds and evolved the use of credit, at first conducted by Jews under contempt for charging interest, but later legalized and conducted by merchant banks and public banks that spread from the Italian cities to London. *Commerce thus created the institutions of money, banking and credit.*

Moreover, commerce required an extension of the powers of government. When royal absolutism attempted to dictate to mereantile interests, there was a struggle for power in which the mercantile interests won a position of respect and prestige. Constitutional government underwent an evolution in the direction of the rights of business and property. In addition, it became the first interest and duty of government to take positive steps to promote commerce. Navigation acts, tariffs, subsidies, bounties, monopolies and discriminations were used to encourage the commerce of the home country. One special outgrowth of these tendencies was the economic doctrine of Mercantilism, which justified a so-called favorable balance of trade. The balance of trade was declared favorable only when exports of goods exceeded imports, because the difference would be settled by payments of gold and silver, and imports of these precious metals were the form of wealth coveted above all others. The Mercantilists believed that the only feature of international trade which was of benefit to a country was getting as much gold as possible. This philosophy was in part related to the desire of governments for a stock of ready money wherewith to further dynastic ambitions or to conduct their recurrent wars. Commerce had given rise to new sources of state revenue and taxation, and had facilitated the development of administrative systems by strong central and nationalistic governments. So dominant were these centralized powers that the period is often called the period of Nationalism. *Nationalism and Mercantilism* were closely intertwined, and were outstanding characteristics of the growth of the economic functions of government.

During these changes, standards of consumption attained a new level. From Asia and America there flowed into European markets new foods and fabrics hitherto unknown even to the most extravagant of the nobility. These imports were at first luxuries for the few, but gradually many of the products permeated the middle and even the lower classes and partook more and more of the nature of necessities. Silks, tapestries, cottons, furniture, glass, pottery, drugs, sugar, potatoes,

¹⁰ W. R. Shepherd, *Political Science Quarterly*, 1919, p. 218.

tobacco, fruits,—such commodities from overseas gave a new variety to taste and fashion. A new level of economic wants had been created.

All of these wants were significant but in the aggregate they were limited in amount as compared with modern times. The great limiting factor was the lack of mechanical methods of production. Economic life had about reached its zenith on a technology of tools and handicraft. Ancient civilizations had repeatedly reached a similar level of consumption and then declined. *Eighteenth century civilization was safeguarded from such a fate by an intellectual revolution.*

The Industrial Revolution was to be a triumph of applied science. The brilliant Greek abstract scientists had scorned practical applications in the form of new mechanical inventions, and the Greeks, with all their intellect, never escaped the thrall of their tool technology. Foremost among all the results of the expansion of commerce was the intellectual progress of the times. Owing to this traffic in “ideas even more precious than goods,” the conservative bonds of the medieval mind were burst asunder. Medievalism, drawing all its authority from the Church Fathers, the Bible, and Aristotle, emphasizing exclusively the life to come, believing unqualifiedly in supernaturalism, was impervious to scientific technique. Renaissance and Reformation had been phases of a broadening outlook. Geography had been rewritten by the discoverers and explorers of trade routes. Astronomy had been completely recast by Copernicus, Kepler, and Galileo. Mathematics, mechanics, and physics had been placed on a modern experimental basis by Newton, Leibnitz, Boyle, and Napier. Chemical science had been founded with the achievements of Priestley, Lavoisier, and Cavendish. Medical and biological science made great advances. Electricity had already been the subject of experiment by Galvani, Franklin, and Volta. Roger Bacon in the thirteenth century and Francis Bacon in the later sixteenth and earlier seventeenth centuries had definitely committed themselves to the “habit of scientific and critical thought.”¹¹ Descartes with his determination to “question everything,” Voltaire with his attack upon the authority of church and state, John Locke with his open repudiation of the “divine right of kings,” Rousseau with his doctrine of freedom and the social contract, Montesquieu with his philosophy of republican government, the Royal Society of London and the Academy of France interesting themselves in all scientific progress, and not least of all the Physiocrats opposing their doctrines of *laissez faire* to those of mercantilism and leading to the foundation of political economy as a science, as signalized in 1776 by the publication of Adam Smith’s *Wealth of Nations*,—all these things attest the birth of the modern scientific mind. This attainment was both prerequisite and cause of the Industrial Revolution.

From the thirteenth century onward, a practical inventive tendency had appeared, manifesting itself in the compass, which enabled ships to sail out of sight of land; the lens, which led to the microscope and tele-

¹¹ See James Harvey Robinson, *The Mind in the Making*, p. 152.

scope; gunpowder, which revolutionized the art of warfare, and the printing press, which fostered the spread of scientific and popular knowledge. People had already become accustomed to inventiveness before the great inventions of the machine age were made. The significance of this intellectual outlook is well stated by Barnes as follows, "The general intellectual conditions prevailing in any age determine the possible degree of progress in science and technology. The status of science and technology is the basic factor creating the prevailing type of economic institutions."¹²

The so-called Industrial Revolution was not an overnight transformation. It had its beginnings in the stone ages, and it reached fruition at the end of a thousand years of transition from the end of the Roman Empire to the inventions of Watt and Hargreaves. The great inventions in spinning and electricity were themselves almost a hundred years apart. And even greater than the inventions of that hundred years have been the continuing discoveries of applied science in electricity, chemistry, engineering, and automatic machinery. The Industrial Revolution is still going on, a continuous process of discovery and invention. The advances made since 1890 are fully as revolutionary, compared with the century of the steam engine and the locomotive, as those were compared with the centuries of hand tools. The machine economy now commands the center of the stage in the development of a technology of production for the satisfaction of the economic wants of man.

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¹² H. E. Barnes, *Social History of the Western World*, p. vii. See also C. J. Hayes, *A Political and Social History of Modern Europe*, Vol. I, pp. 414-426; and James Harvey Robinson, *Medieval and Modern Times*, Chapter XXII.

CHAPTER III

THE HISTORICAL BACKGROUND OF ECONOMIC SOCIETY (*Continued*)

The first country to experience the Industrial Revolution was England. Hence a description of the early mechanical inventions has mainly an English setting.

The Inventions of the Industrial Revolution.—The initial inventions of the Industrial Revolution were made in textile manufacturing. The spinning jenny of James Hargreaves, invented in 1767, which originally operated eight and, later, eighty spindles instead of one; the water frame spinning machine of Richard Arkwright, invented in 1768; the “mule,” which combined the best features of these two inventions, finished by Samuel Crompton in 1779,—these were the first true machines. They so increased the efficiency of spinning that more yarn could be made than could be woven into cloth. To enable weaving capacity to keep pace with this new spinning capacity, the power loom was perfected in 1787 by Edward Cartwright. In 1792, Eli Whitney invented in America the first cotton gin, increasing from one pound to three hundred the amount of cotton one man could clean in a day. These primary inventions revolutionized first the textile industries and later all industries of basic importance to society.

Machinery could not be hand driven. The harnessing of natural energy was essential. Taking advantage of earlier experiments in physics and adding improvements to many earlier attempts at invention, James Watt in 1769 produced the first successful steam engine. The engine was first applied to pumping water from coal mines, to hoisting coal, and to driving machinery, and in the course of time to propelling the locomotive and the steamboat.

The maintenance of these inventions required more iron for machine construction. Discovery of methods of smelting by the use of coal and coke instead of charecoal, and of methods of producing malleable iron by the so-called puddling process, gave a new impetus to the mining and manufacture of metals. The machine age is often termed the age of coal and iron, because these are indispensable materials in the primary productive enterprises. The importance of these industries is so great that practically all manufacturing enterprises are localized in the vicinity of supplies of coal and iron.

The steam engine and ample supplies of coal and iron were a preparation for the revolution in land and water transportation. In 1807 Robert Fulton drove his steamboat up the Hudson River, and in

1838 the first steamship crossed the Atlantic by steam alone, in half the time required for sailing vessels. Engineering achievements in canal construction were widely applied, and by 1830 nearly all important points in England had been linked together by canals. In 1825 George Stephenson, taking advantage of many prior experiments and inventions, successfully demonstrated the railroad locomotive. This opening of the revolution in land transport occurred about fifty years later than completion of the first great manufacturing inventions. The railroad, however, did not come into wide use until about 1860 to 1870, when the invention of telegraphic communication made possible a complete technique of transportation.

The Industrial Revolution therefore rested originally upon inventions in three great fields,—manufacturing, power, and transportation. Machines, engines, and railroads were the trinity which ushered in the modern machine age.

These inventions revolutionized, in turn, the whole organization of economic life. Machinery remade economic institutions. Machinery, concentrated in mills and workshops, created the factory system. Machinery gave a strong incentive to ownership of buildings, raw materials, and mechanical equipment by private capitalists, and thus established modern capitalism. Machinery made possible large scale production, with ownership divorced from management, and personal contact between employer and employee a myth of the past. Machinery put labor as individuals at the mercy of management, and thus gave rise to the major modern movements of reform, such as unionism, the struggle for political democracy, and socialism. Machinery caused population to be urbanized and made the masses of people, living in congested metropolitan centers, absolutely dependent upon a nation-wide and a world-wide organization of production, communication, transportation and commerce. Machinery required the financing functions of credit, banks and exchanges, and brought into universal usage the modern price system. Machinery has created countless problems too difficult for private business to solve and has therefore necessitated the assumption of elaborate economic functions by modern government. Each of these illustrations emphasizes the outstanding fact that the underlying force to which all economic institutions have been compelled to adapt themselves has been the mechanical inventions which produced the Industrial Revolution.

The Economic Development of the United States to the Civil War.—Although the Industrial Revolution occurred first in England, it soon spread to other countries and had taken effect in all the leading countries by the end of the nineteenth century. Once the movement was well under way, all advanced nations had something original and important to contribute to the machine technique. England was not the only country which made important inventions and discoveries. Inventions and discoveries in applied science have been a composite contribution of many countries. The modern technology of production is a

joint creation of the industrial nations. Each nation, it is true, borrowed much from England in the early stages of the Industrial Revolution, but once started each such borrower has in turn had its own unique and important inventions and discoveries to contribute to the pooled knowledge of the world.

The experience of the United States well illustrates how a nation is both a borrower from and a contributor to this joint stock of technology. The Americans did not feel keenly the need of developing their own manufactures until about the period of the War of 1812. Prior to this period the people had engaged almost entirely in agriculture and the trades closely connected with it. Such manufacturing as was done rested upon the use of hand tools, much as in England before that country was affected by the Industrial Revolution. The Americans were content to buy the bulk of the manufactured goods which they required from abroad, giving in exchange exports of agricultural products.

The events surrounding the War of 1812 stimulated a marked growth of manufacturing within the country. The Embargo and Non-Inter-course Acts of 1807 and 1809 and the War of 1812 practically cut off all foreign trade of the United States. This stoppage of the foreign source of manufactured supplies created a strong demand that the manufactures formerly imported should be made at home. Samuel Slater, who had previously worked in Arkwright's factories in England, reconstructed from memory the spinning jenny. Francis C. Lowell in 1814, after inspecting machinery in England, reconstructed from memory the power loom, and put into operation a factory which under one roof performed the complete process of converting cotton into cotton cloth. These machines had to be built from memory in each case because England, in order to hold a monopoly of her inventions, prohibited any one from carrying out of the country plans or blue prints. The Industrial Revolution had to be smuggled from England into the United States. By 1831 American factories were producing twenty yards of cloth per head of the whole population and by 1860 more than forty-six yards per head. Woolen and metal manufactures underwent a corresponding growth. In 1846 Howe invented the sewing machine, thus laying the basis of the ready made clothing industry. And in 1861 Mackaye invented the sole-sewing machine, thereby introducing the factory manufacture of shoes and leather goods.

This manufacturing progress was accompanied by progress in the use of mechanical power. The steam engine was applied to driving machinery, and the abundance of water power, especially in New England, furnished cheap energy for the factories.

Manufacturing and power technique were supplemented by improvements of transportation. In the first quarter of the nineteenth century, there was a large increase of turnpikes, toll roads, and bridges, the most important road being the famous Cumberland route. There was a keen interest in the building of canals, the most important being the Erie

canal, completed in 1825. There was an expansion of river traffic, owing to the use of steamboats following Fulton's invention. There was a rapid growth of railroads following the first line opened by the Baltimore and Ohio in 1830. By 1860 there were 30,000 miles of railroad in operation, including eight trunk lines connecting the tide-water district with the interior. Up to the Civil War, in spite of the growth of railroads, water transportation nevertheless remained the dominant mode of transportation. The cost of transport by rail was less than one-tenth of that by ordinary highways, but transport by water was still cheaper. As late as 1872, 85 per cent of the freight between New York and Philadelphia still went by water. The railroad however was coming into its own, and the census of 1860 sums up the contemporary view of the railroad by referring to "that vast and connected system which like a web now covers every portion of our wide domain and supplies means of locomotion and a market, almost at his own door, for nearly every citizen of the United States." This vast system welded together the manufacturing and commercial East, the cotton and tobacco growing South, and the food producing West, and in spite of slavery and secession was a powerful force in keeping the economic union solid and indestructible.

Closely interwoven with these developments of the Industrial Revolution were developments in communication. The experimental researches and studies in electricity, from the time of William Gilbert in 1600, and prosecuted by such men as Benjamin Franklin, Galvani, Volta, Ampère, Ohm, Faraday, Cavendish and Henry, were brought to a practical focus in the invention of the telegraph in 1835 by Samuel F. B. Morse. By 1862 San Francisco and Washington were united by wire, and four years later Cyrus W. Field and Peter Cooper carried to success the first Atlantic cable. The newspapers, to take advantage of this new facility for news gathering, had repeatedly experimented with improved printing machinery. In 1845, R. M. Hoe invented the rotary press and started the newspaper on its modern career. The telephone was invented in 1876 and, together with the other means of communication, became an indispensable part of the expanding machine technology.

An Agricultural Revolution was taking place simultaneously with the Industrial Revolution in the United States. Until about 1830 the tools and implements of farming were practically the same as those which had been in use 4,000 years earlier. Hand sowing of grain, reaping by sickle, scythe or eradle, threshing by flail or by the tramping of horses or cattle, tillage by a crude cast iron plow and by hoe, were the main farm methods still in use. By 1866 every one of these operations was done by machinery driven by horsepower. From 1830 on, there was a series of inventions of drills, planters, cultivators, mowing machines and threshing machines. Cyrus McCormick patented the reaper in 1834 and started manufacturing the new invention in Chicago in 1848. The chilled steel plow was perfected by James Oliver in the

sixties. Thus by the time of the Civil War, agriculture as well as industry had been transformed by the inventions of the machine.

The Economic Development of the United States Since the Civil War.—The decade of the Civil War was a period of transition when these many inventions were speedily assimilated into the economic life of the country. "With the Civil War there began a new industrial era."¹ Whereas 9 out of 10 people lived on the farm at the beginning of the century, and 8 out of 10 lived on the farm at the middle of the century, under the new era less than 3 out of 10 live on the farm. This remarkable shift of population has been possible in part from the wider adoption of inventions made prior to 1860 and in part from continuous new inventions of mechanics and science.

(a) *Manufactures.* Since the Civil War the United States has become the leading nation of the world in total volume of manufactures. Three factors in this growth may be noted here: the increasing use of mechanical equipment, the development of new industries, the abundance of natural resources.

The American manufacturer has equipped his laborers with more machinery, more non-human energy, and more capital equipment generally than has the manufacturer of other countries. It is estimated that the supply of this productive capital has increased per wage earner fully fourfold since 1860, and in the same period the supply of non-human energy has increased nearly fivefold per wage earner. More mechanical equipment and more horsepower per worker have greatly increased the output per worker. These causes have increased the annual production of pig iron per worker from 267 to 709 tons. They have increased the production of gasoline per worker from 23,000 gallons to 71,000 gallons, and of automobiles from one and one-half to four cars per worker. From 1860 to 1910 the mineral production per mining employee more than doubled, and since 1910 production has increased an additional 25 per cent in efficiency. A generation ago the bituminous coal miner produced two and one-half tons per day, whereas today, by the use of superior machinery, he produces more than four tons per day. This multiplied efficiency of the worker means that production has increased much faster than population. In the 22-year period ending in 1920 the physical quantity of manufacture per capita of the total population rose 39 per cent.² The superior use of mechanical equipment in production has thus been a salient feature of the phenomenal development of manufacturing in the United States.

The second factor in manufacturing growth, namely, the development of new industries, has a wide variety of illustrations. The building of railroads and the making of the new machinery early created a demand for steel to displace iron. The discovery by Sir Henry Bessemer in England in 1856 of the Bessemer process of making steel by blowing air through molten pig iron made possible large scale produc-

¹ T. N. Carver, *Principles of Rural Economics*, p. 85.

² *American Economic Review, Supplement*, March, 1923, p. 131.

tion of steel at a moderate price. One steel rail for the railroads would outwear twenty old style iron rails. Later discoveries of the open hearth process, of electric furnaces, of electric handling equipment, of coke for fuel, of chemical analysis of steels, and of new alloys, caused a continuous expansion of the steel industry. All other main lines of production are dependent upon steel as a basic industry, and the United States has come to lead the nations of the world in this basic branch of manufactures. Chemical science has occasioned the expansion of chemical manufactures to the point of employing about a half million wage earners. Electrical and mechanical science has made the manufacture of electrical apparatus and supplies an industry of major importance. The applied science and inventions underlying the petroleum, rubber, and automobile industries have created three lines of manufactures in which American production leads the world. The growth of the meat packing industry since 1870, owing to refrigeration, machine methods of manufacture, and utilization of by-products, has made it first in value of product among American industries. Without enumerating other new industries, we may note one manufacturing principle which runs through all of them and which characterizes American manufacturing in impressive fashion. This principle is the use of automatic machinery. *The automatic machine, involving standardization, repetitive processes, and quantity production, is the master stroke of American manufacturing genius.*

A third leading factor in American manufactures has been the country's abundance of natural resources. The raw materials of manufacturing are derived mainly from agricultural industries and from mineral deposits. The agriculture of the United States is noted for the wide variety of its products and for a volume of output which in major lines is not only adequate for home industries but offers a surplus for export. The main minerals used in manufacturing, namely, coal, iron, and copper, are found in the United States in greater abundance than in any other industrial country. Every phase of manufacturing progress has been stimulated and supported by the richness of American natural resources. This very richness has been a strong temptation to wasteful exploitation, but in recent decades, the idea of conservation of natural resources has taken a firm hold on the American mind. Proper conservation of resources would insure a permanent wealth of raw materials and would thus be of paramount importance to the future prosperity of American economic life.

(b) *Power.* Only a half century ago, the total horsepower used to drive manufacturing machinery was two million. Today it is more than thirty million. Of this vast amount of harnessed power, about two-thirds is steam power, about one-fifth electric power, and the remainder power derived from water or from the internal combustion engine. The invention of the dynamo to convert mechanical energy into electric, the central power station to distribute the energy for power and light, and the electric motor for the driving of machinery, represents a tendency

toward the gradual displacement of the age of steam by the age of electricity. The invention of the internal combustion engine led to the automobile, the aeroplane, the submarine, and the oil-driven ocean liner. The utilization of hydroelectric power has already established itself, but the potential resources of this form of energy are as yet barely touched. The modern tendency is toward the creation of power zones, with central stations near water power or near coal mines, and with the energy conducted by wires over a radius of hundreds of miles. Scientists are of the opinion that, whereas the past has been an age of coal and steam, the future will be more and more an age of electricity and petroleum.

(c) *Transportation.* Transportation has been of more importance to the United States than to most other countries because of the vast distances which must be united within the nation's borders. As early as 1869, a transeontinental line was completed by the joining of the Union Pacific and Central Pacific roads. Railroad expansion in the United States was aided by enormous grants of State and Federal public lands. The railroads have received approximately 155,000,000 acres of such land, an area four times the size of the New England states. Under this stimulus, the railroad mileage of the United States increased from 30,000 miles in 1860 to 253,000 miles in 1920. All other countries of the world combined had only 440,000 miles in the latter year. "Proportionately to population," says Ripley, "the United States is about six times as well equipped with railroads as Europe."³

Railroad transportation has been supplemented by a growing network of electric and water lines, and motor highways. The congestion of population in cities has necessitated the cheap transportation provided by electric railways and interurban lines. Water routes have been expanded by canal construction, of which the most noted is the Panama Canal, by improved rivers and harbors, by traffic on the Great Lakes, and by coastwise navigation. Motor trucks and busses, and all forms of the automobile have multiplied transportation facilities immensely. The necessities of the World War caused the construction of a merchant marine second in tonnage only to that of England. Post-war experience indicates that this full tonnage cannot be operated profitably on a permanent basis by the United States. Nevertheless since the war the United States has carried about 40 per cent of her foreign commerce in American ships as compared with barely 10 per cent before the war.

(d) *Communication.* After 1866 transoceanic cables were laid to insure quick intercontinental communication. Mareoni's perfection of wireless telegraphy in 1896, and the triumph of laboratory research in the radio telephone have immensely expanded the possibilities of quick exchange of intelligence. Alexander Graham Bell invented the telephone in 1876, and by 1923 the United States had 15,000,000 telephones in use. The aeroplane has come into use as a means for quick

³ *Railroads, Rates and Regulation*, p. 35.

transportation of the mails. One indication of the importance of these means of communication is the fact that all of them are classed as public utilities. They are not merely a source of convenience or comfort, but are essential to the very existence of large scale business and the complex economic system of today. A strike of telephone or telegraph operators would be as disastrous for the country as a strike of the railroad workers themselves.

(c) *Agriculture.* To feed the population in 1860, it was necessary that 80 per cent of the people live and work on the farms of the United States. To feed the population in 1925, it is necessary that only 30 per cent of the people live and work on the farms. The great increase in the efficiency of farm labor was accomplished by the increased use of farm machinery and by the application of scientific methods to farming. The value of farm machinery per acre increased about sevenfold between 1850 and 1890. Modern machinery includes such devices as tractors, automobiles, trucks, engines, telephones, and improved tools of all kinds. Other improvements in scientific methods were due largely to research in biology and chemistry. Biological research made effective the application of the laws of heredity to plant and animal breeding and created greatly improved stocks of plants and animals. Chemical research, drawing upon Liebig's researches in Germany in the chemistry of animal and vegetable life and upon the studies of many other scientists in Europe and America, pointed the way to the improvement of soils by the use of artificial fertilizers, by drainage, and by irrigation. Much of this research was the result of special university laboratories and of government experiment stations. The tendency has been in recent years toward more intensive farming, toward better care of each acre of land, toward increasing the product per acre of land rather than toward making each laborer scatter his effort over more and more acres.

While farm efficiency has been increasing in this manner, the development of the western frontier has also been accomplished. The settlement of the Far West was a most important feature of our industrial growth. The Homestead Act of 1862 opened the public lands to free settlement. Between 1860 and 1890, there were 2,511,000 new farms taken up, an acreage equal to one-fourth of the total land area of the country. The frontier, with its free land and free opportunity, made for economic equality, self-reliance, and democracy. In analyzing this period, Becker declares, "The United States has always had, until very recently, more land than it could use and fewer people than it needed, and this is not only the fundamental economic difference between the United States and European countries, but it is a condition which has had more influence than any other in determining the course of American history."⁴ With the passing of the frontier in the last decade of the nineteenth century, a new relationship between industry and agriculture became evident. The growing population, finding no outlet on the frontier, was congested in the cities. Labor troubles became more in-

⁴ Carl Becker, *The United States an Experiment in Democracy*, pp. 156, 312.

tense, and the sharp inequalities of income and opportunity developed the class alignments of labor and capital. *The United States is not yet as completely industrialized as many countries of Europe, but, with the passing of the American frontier, the significant fact is the speed with which it is becoming so.*⁵

(f) *Labor.* The passing of slavery meant the coming of a new labor problem. The negro today makes up 10 per cent of the total population, but in some southern states he makes up a majority of the population. Southern agriculture is organized around the labor performed by the negro population. Within the last two decades there has been a marked drift of negro labor from farms to factories and mines, where unskilled work is required. This drift has especially been marked by an exodus of negro labor into northern cities, to meet an unskilled labor shortage created by restriction of immigration. Formerly a southern problem, the negro is becoming more and more a northern problem, and the appearance of race riots and racial antagonisms in northern industrial communities is a sign of this shifting locus of the negro economic issue.

Labor history has been influenced at every turn of events by immigration. Since 1820, approximately 36,000,000 immigrants have come to the United States. The foreign-born white population is now about 14 per cent of the total population. Immigrant labor aided the opening up of the resources of the country by supplying us with an unskilled labor element. But accompanying this benefit was one handicap which immigration imposed upon American labor. The huge inflow of labor supply tended to depress wages and to make difficult the struggle of labor organization to raise its standards of living. Alien labor was cheap labor, and menaced the existence of American standards. Gradually the public mind came to believe in defense from the immigrant horde by passing laws to select the best and to reject the worst. Within the last decade, this idea has been carried much farther than ever before, and the selection has become so exacting that it has resulted in rigid restriction. The Restriction Law of 1924 limits immigration from any one country to 2 per cent of the foreign born of that nationality living in this country according to the census of 1890. This provision not only limits the total amount of immigration, but also serves to insure that the bulk of the immigrants admitted come from the countries of northern and western Europe. The chief economic effect of such restriction is to maintain a scarcity of common labor and therefore to keep wage scales higher than they otherwise would be.

The movement of organized labor has come into greatest prominence since the passing of the frontier. The American Federation of Labor represents labor's greatest power matched against the power of organized capital. The recurrence of strikes is a menace to the safety and welfare of the public, and the problem of maintaining industrial peace

⁵ See Frederick J. Turner, *The Significance of the Frontier in American History*.

has become just as important as the problem of maintaining international peace.

(g) *Population.* There has been a remarkable growth of total population in the United States. From 5,308,483 in 1800 the population increased to 31,443,321 in 1860 and 105,710,620 in 1920. The density of population per square mile increased from 6.12 in 1800 to 10.57 in 1860 and 35.78 in 1920. The present increase of population is at the rate of more than 1,500,000 each year.

The distribution of this population is as important as its total numbers. Practically the entire increase of population since 1900 has gone into the cities, with the result that less than 30 per cent of the people live on farms. The density of this population varies from .7 per square mile in Nevada to 566.4 per square mile in Rhode Island. Around such cities as Boston, Chicago and New York there are extensive suburban districts and outlying towns and farm areas. These metropolitan groupings are vast industrial units. Marketing, transportation, banking, manufacturing, all head up in the great cities. The outlying regions feed certain products into the cities and receive in return certain manufactured articles. The metropolis is the nucleus of this distribution of population, and interdependence of parts is the key to the entire system.

(h) *Finance.* Whereas in the early part of the nineteenth century banking was done with the actual capital owned by the bank and by issues of bank notes, at present banking is done chiefly with deposits subject to check. It is estimated that more than 90 per cent of all business transactions are carried on by the use of credit. Banking was founded on a conservative national basis in 1863 by the passage of the National Banking Act. A most important extension of banking policy came in 1913 with the passage of the Federal Reserve Act. The free coinage of a single metal, gold, was authorized by Congress in 1873 and in 1900 the United States definitely adopted the gold standard. The World War forced all leading nations of the world except the United States to suspend the redemption of currency in gold. The United States was able to hold to the unrestricted gold standard. The immense war loans and the new currents of trade served to transform the United States from a debtor nation to a creditor nation of the first rank and to bring American bankers into a field of leadership in international finance.

(i) *Government Regulation.* With the growth of large scale business and the increase of corporate organization, the Government has found it increasingly necessary to pass legislation protecting labor and the public and to create administrative bureaus and commissions for the regulation of business. Business has in turn sought protection of its rights, and the courts have, through a series of important decisions, surrounded the rights of property and of freedom of contract with a wall of defense. The Federal Constitution has proved elastic enough to

accommodate itself to the main requirements of modern business life and has been conducive to conservative changes in fundamental relations between government and business.

(j) *Foreign Commerce.* For more than a century the fate of the foreign trade of the United States has been wrapped up with the issue of a protective tariff. In the public mind the tariff has overshadowed every other feature of American trade, but from a more technical economic viewpoint it would appear that the main lines of commercial evolution have gone forward regardless of the tariff interferences. About one-tenth of the nation's total product at present is exported. In some industries the ratio is much higher. For instance, more than one-quarter of the wheat crop and more than one-half of the cotton crop have normally been exported. On the import side, there are special industries which are almost entirely dependent upon foreign sources of supplies. For instance, the automotive industries import the bulk of their rubber supply, and the textile industries import half of their wool supply and nearly all of their silk supply. These key industries, which are either dependent upon foreign markets as an outlet for their product or dependent upon foreign resources for their supply of raw materials, make the importance of foreign trade to the prosperity of the country much greater than is implied in the statement that one one-tenth of our national trade is foreign commerce. The United States has been drawn by her own commercial interests into the circle of international economic interests and has become a definite part of the world-wide economic unit.

The composition of American commerce is an index of important economic changes. In the fore part of the last century, exports were composed almost exclusively of agricultural products, and imports were composed mainly of manufactures. But due to the growth of domestic manufactures, exports are now composed mostly of manufactures and imports are composed mostly of raw materials to be used in our factories. This reversal in the composition of exports and imports is a reflection of our transition from a chiefly agricultural-extractive type of industry to a manufacturing-commercial type. Foreign trade is an index of the fact that the United States has entered the stage of advanced industrialism.

The Spread of the Industrial Revolution Throughout the World.—While the Industrial Revolution was progressing in the United States, it was also transforming the economic life of other leading States. In most countries, the beginnings of the Industrial Revolution were borrowed from England, but the later advances were a joint product of international science and invention.

(a) *France.* France was the first country on the continent of Europe to enter upon the new industrial era. Following the period of the Revolution and the Napoleonic Wars, machinery for the manufacture of silk, cotton, and wool was introduced, and gradually the application of the steam engine resulted in the growth of railroads and the development

of a substantial iron industry. One handicap in French industry has always been the scarcity of natural resources in coal and iron. This scarcity was aggravated by cession of the rich resources of Alsace-Lorraine to Germany in 1870. France ranked only fourth in coal and iron production among the nations in 1914. However, the territorial settlements of the World War so altered this restriction that France has come into possession of more than a third of the total iron supply of Europe, or more than the resources of England and Germany combined. For coal and coke, on the other hand, France is still dependent upon the coal beds of German Westphalia. These resources of the two countries are industrially a unit but politically separated. The result is somewhat the same as if the coal of Pennsylvania were controlled by a foreign power. The coal and iron problem of France and Germany is of the utmost significance in understanding modern economic forces in world affairs.

French manufactures have never pushed agriculture as far into the background as has been the case in many other countries. Fully one-half of the population of France depends upon the soil for a livelihood. The tenacity of agriculture is in part due to the fact that France is the land of the small peasant proprietor, as contrasted with England which is the extreme example of huge landed estates farmed by tenants and hired labor. Moreover, French manufactures have never become so exclusively large-scale undertakings as have manufactures in many other countries. A great amount of manufactures is still carried on in the home or in the very small workshop. These small individual producers emphasize in their product artistry, craftsmanship and personal skill, as contrasted with the mass standardized production of other countries.

As a consequence, the exports of France have become famous the world over for high artistic finish, and for the qualities of luxuriousness, refinement and fashion. Silks, laces, and other articles of exclusive taste are leading products. Her imports consist of raw materials or of such manufactures as require the mass standardized production of foreign factories. Her desire for markets and for sources of raw materials led to colonial expansion and an aggressive foreign trade policy. This policy was supported by French bankers, who became the foremost foreign lenders of money and capital on the continent, and who derived their capital from the intensive thrift of the mass of peasants and small shopkeepers. Under the Treaty of Versailles, French power on the continent has been strengthened, and her economic supremacy, at least for the time being, has been clearly established.

(b) *Germany.* The beginnings of the Industrial Revolution did not occur in Germany until German unification had been completed by the series of wars ending in 1870. The change came a century later in Germany than in England and a half century later than in France and the United States. Although Germany made a late start in the machine technology, nevertheless so rapid was her progress that by the end of

the nineteenth century she had fully assimilated the inventions of England, France and the United States and had advanced her industrial power with a rapidity unparalleled by any other country in Europe. Germany was favored by the fact that she had excellent resources of coal and fair resources of iron. In 1914 Germany had passed England in production of iron and steel manufactures and was second only to the United States. This development grew out of the discovery of the Bessemer process of steel making. Under this process the German ores, which were heavy with phosphorous impurities, were refined by lining the furnaces with manganese. The World War stripped the rich iron ores of Lorraine from Germany's grasp, and created a situation whereby Germany is just as dependent upon France for iron as France is upon Germany for coal and coke.

Germany carried forward the machine technology by her unusually thorough application of laboratory science and technical education to the needs of industry. Owing largely to this unrivalled use of science, Germany excelled in the chemical and electrical industries. In 1914 Germany supplied four-fifths of the world's chemical dyes and German engineers had built most of the electric railways of Europe.

One outstanding feature of German industry was the close alliance which existed between the Government and industry. The different trades and industries were highly organized in cartels and syndicates, and big business, instead of being prosecuted by anti-trust laws, was encouraged and supported by the Government. German statesmanship, in the endeavor to build a great economic future, acquired a vast colonial empire in Africa and Asia, and by the Berlin to Bagdad railway and other related undertakings put into effect the famous "Drang nach Osten," aimed to give Germany control of southern Europe through to Turkey. The Government encouraged international trade, and an intense commercial rivalry with other countries developed. Large consolidations of banks and of shipping companies aided in the commercial policy of peaceful penetration of all countries. To protect trade routes Germany had developed the second largest navy and merchant marine in Europe.

On the continent of Europe, Germany was the economic center of a vast organization of interdependent nations, and she was the best or second best customer of nearly all European countries. This economic organization was shattered by the terms of settlement of the World War. German trade was cut down, her colonial empire was taken from her, her Berlin to Bagdad railway was wrested from her control, her navy and merchant marine were destroyed, her organization of foreign markets was demoralized, her best iron supplies were transferred to France, her currency system underwent the chaos of fiat money and excessive inflation, and her whole surplus power of production was absorbed by the Allies in the payment of reparations and indemnities. The reconstruction and reorganization of Germany will be a determining factor in the future economic life of all other countries in Europe.

(c) *England*. The developments of the Industrial Revolution in England during the last fifty years have certain peculiar characteristics which are of importance. By location, England was more dependent than any other western nation upon sea power. Consequently her merchant marine and her navy ranked first among the nations of the world. In manufactures, England has reached the extreme point where less than 10 per cent of her population is directly engaged in agriculture, while in the other leading nations, at least from one-fourth to one-half of the population is so engaged. In foreign trade, England had achieved supremacy, and her exports per capita before the World War were more than double those of the United States. In colonial empire, England had expanded until she brought about one-quarter of the productive area of the world under her flag. In coal and iron, England had sufficient resources so that in 1913 she ranked third among the nations in these basic industries. In finance, England had developed a world-wide network of international banking and had succeeded in making London the principal center of payments and clearings for the trade of the world. Bills of exchange drawn on London banks are everywhere honored. In commercial policy, England has adhered to the basic policy of free trade outside the empire and tariff preferences within the empire. In 1913, England had invested abroad about \$20,000,000,000 and was the main creditor nation of the world. English bankers have financed the Industrial Revolution in its early stages in nearly all of the other countries.

(d) *Russia*. Russia experienced little industrial progress until the last decade of the nineteenth century. After 1890, the Russian Government adopted a policy of encouraging the building of railroads, the introduction of textile and other manufactures, and the exploitation of natural resources. Lacking capital for this expansion, Russia borrowed heavily from the more advanced nations, particularly from France and Germany. Russia has immense potential resources, but has remained predominantly an agricultural country. More than four-fifths of the population is agricultural, and the chief exports of the country are foodstuffs and raw materials. Her farming has been modernized somewhat by the import of farm machinery, but for the most part her methods are still very primitive.

Industrialism and a reactionary government were two leading causes of a remarkable growth of socialistic revolutionary thought, a movement which during the World War crystallized in the Bolshevik Revolution. The ensuing Soviet Government attempted to install Communism in both city and country, but owing to the land hunger of the individualistic peasants Communist policies affecting farm regions had to be abandoned. The disturbance of Russian economic life destroyed the normal surplus of foodstuffs for export and in many ways isolated Russian industry from the outside world. Russia remains a great granary of Europe, rich in resources and potentialities. Under the control of the Soviet Government, the country is undergoing a stupendous eco-

conomic experiment of uncertain outcome. Under what is called the "new economic policy," the Soviet authorities have made many concessions to private capital in both commerce and manufacture. Communistic and capitalistic enterprise have expanded side by side.

(e) *Japan.* The other European nations offer variations in modern industrialism, but fundamentally their economic life fits into the conditions and forces established by the industrial system of the Great Powers. The same system has likewise established a firm foothold in the Orient. Following Commodore Perry's visit to Japan in 1853 and the bombardment of Japanese ports in 1863 by European and American fleets, Japan discovered that the only means by which she could protect herself from European industrialism was to adopt that same industrialism and to rival Europeans in their own technical arts. The Industrial Revolution was thus a deliberate strategy of defense. The Imperial Government abolished feudalism in 1871, and encouraged in every way the rapid adoption of the new industrial system. Within the space of a generation, economic life had been transformed by machinery, factories, railroads, steamships, foreign commerce, electricity and science. The deliberate and systematic plan which the Japanese followed out is unique for its thoroughness and swiftness in industrializing a nation.

Japan today is the dominant power in the Orient. However, in basic resources Japan is not well endowed and she faces a dependence upon foreign resources, particularly those of China. China has, therefore, been the victim of a strong policy aimed at control of her rich mines of coal and iron. Japan needs China both as a source of raw materials and as a market outlet for her manufactures. Other nations have in the past attempted to seize portions of China's great wealth, but such rapacity has been held in check by the insistence of the United States upon the policy of the Open Door in China. China has attempted to absorb machinery, factories and capitalism, and the beginnings of the Industrial Revolution are already accomplished. Her greatest domestic weakness is the lack of an effective central Government. China comes under the tutelage of Japan much as parts of Latin America come under the tutelage of the United States in its application of the Monroe Doctrine. The introduction of Occidental capitalism in the Orient has tended to shift the center of economic power from the Atlantic to the Pacific and has made the trade routes of the Pacific among the most important anywhere in the trade world.

(f) *Backward Countries.* The last decade has witnessed a penetration of the Industrial Revolution among the so-called backward peoples of the world. Textile machinery, railroads, electrical engineering, and factory capitalism have gained a clear foothold in India, in parts of Africa and in all of Latin America. These countries were formerly dependent almost entirely upon industrial nations for supplies of manufactures, but more and more they are carrying on their own manufacturing in domestic factories. Industrialism is in process of transforming the economic life of all peoples, no matter how remote or

how backward they may have been in the past. The Industrial Revolution has become a World Revolution. The progress of individual nations is but a tributary to the main current of world economic development. The position of each separate nation is not one of independence and isolation, but one of interdependence and solidarity with all the nations of the world.

World-wide Industrialism.—Since 1870 more than one-half of the habitable area of the globe has been appropriated for economic purposes by European nations and the United States. This enormous expansion has been the natural outgrowth of the application of machine technology throughout the world. This technology involved both a struggle for raw materials and a struggle for markets. In this struggle, the Great Powers vied with each other in carving out for themselves spheres of influence, protectorates, and colonial empires. Diplomacy allied itself with business, and big armies and navies were found necessary to protect large scale investments of capital overseas. Nationalism and Imperialism were leading characteristics of this great economic expansion, and both went forward under the moral justification implied in the phrase, "the white man's burden." Industrialism had enlarged its scope until it embraced all nations and all peoples. As Shotwell has said, "The thing we call civilization has drawn the isolated communities of the old régime into a great world organism, with its afferent and efferent nerves of news and capital reaching to its finger tips in the markets of the frontier."

In the midst of extreme Nationalism and commercial rivalries, interdependence has also been rapidly increasing. The bulk of foreign diplomacy has to do with commercial questions. The main clauses of international treaties concern themselves with matters of trade. Repeated international conferences are required to smooth out economic differences between nations. The majority of the nations have bound themselves together through League of Nations and World Court compacts. The Versailles Treaty of Peace projects the future economic map of Europe into the forefront of international problems. From many angles, nations are acting upon the assumption that the world is an economic unit and that the nations are bound together by mutual ties of economic interdependence. The science of economics must analyze modern industrialism on this world scale of operation.

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PART II

PRODUCTION AND CONSUMPTION

CHAPTER IV

THE THEORY AND NATURE OF PRODUCTION

The Meaning of Production.—Production is the creation of utilities. This process does not involve the creation of new matter or of new energy, but consists of the reshaping of matter and of the conversion of energy from one form to another. The science of physics definitely states the law that man creates no new matter or energy, but merely transforms them into shapes and conditions suited to human use. As the physicist understands the word, production is strictly confined to this refashioning of things already in existence. As the economist understands the word, however, production involves a process of creation. It is aimed at the creation of the capacity to satisfy human wants. The conversion of raw cotton into cotton clothing is production because it embodies in the material the qualities which satisfy the want for clothing. The conversion of pig iron into automobiles is production because it embodies in the material the qualities which satisfy the want for locomotion. These processes are creative in the economic sense, because they create utilities embodied in goods for the satisfaction of human wants. Goods cannot be created, but utilities can be. Economic production is putting matter and energy into forms such that men can use them.

Utilities may arise from changes in the form, place, time, or possession of goods. Manufacturing illustrates the creation of form utilities; transportation illustrates the creation of place utilities; storage illustrates the creation of time utilities; merchandising illustrates the creation of possession utilities. Changing goods from one form to another, moving them from one place to another, holding them over from one time to another, transferring them from one owner to another,—these are the creative activities which constitute economic production.

Services as well as material goods may embody utilities. Whether the utilities are in the form of tangible objects or in the form of intangible services, they are equally the evidence of production. Immaterial utilities as well as material utilities enter into the reckoning. Services which satisfy human wants are productive.

The Measurement of Production.—Utilities as such are utterly incommensurable. There is no unit of dimension which can be applied to them. They are subjective phenomena and working concepts for the economist. They have neither length nor breadth, nor width nor weight. They are psychological satisfactions and defy any form of measuring rod.

However, indirectly it is possible to take measurements of production. One method is to measure the physical volume of the goods which embody economic utilities. For this purpose, the units of measurement may be tons, bushels, yards, or cubic feet. The results are expressed in pounds of food, tons of coal or pig iron, yards or bolts of cloth, millions of bricks or of pairs of shoes, numbers of automobiles, square feet of building area constructed, cubic feet of stone quarried, board feet of lumber produced, ton-miles of transportation, bushels of farm crops. The aggregate of such physical measurements is the total volume of production of the country over a given period of time.

A second method of measuring the results of production is in terms of dollars and cents. Money measurement in terms of prices is involved. The price expresses the amount of money for which utilities may be exchanged. Dollar values of goods and services provide a common unit of reckoning which is universal as an economic measuring device. All goods and services are reducible to one common denominator, the price denominator. This pecuniary scale of measurement is of primary importance in all questions involving the making and spending of money incomes.

An Index of Production.—The physical volume of production must be measured before it can be interpreted and controlled. The growth of production over a long period of years and the fluctuation of production from one year to another both require measurement. An index of production for this purpose does not tell the absolute amount of product in any one year, but does tell the relative changes between years. It is purely an index of the rise and fall of production, based upon relative changes rather than absolute amounts.

Present indexes agree in showing that during the quarter century ending with 1924, production doubled in volume in the United States. Since population increased only about one-half during the same period, it is obvious that production increased much faster than population. The production per capita was fully a third greater at the end of the period than at the beginning.

As an average, the increase of production has been steady and persistent. The indexes show an average yearly rate of increase of between $3\frac{1}{2}$ and 4 per cent. This per cent has been the normal rate of growth for half a century. It represents a measuring rod of increasing national efficiency, increasing quantity of goods and services, increasing material well-being.

The normal rate of progress was somewhat impeded by the disturbances of the World War. After 1917, for five years, production at

no time exceeded the output of the 1917 year. Much speculative opinion has been offered as to whether war advances or retards the processes of production. A negative answer to the query is obvious from the indexes of physical production. Even the boom of 1919, built upon post-war abnormalities, did not rest upon a material increase in production. It rested upon inflation and speculation, but not upon an extraordinary output of physical goods and services. The indexes for 1923 and 1924, on the other hand, indicate that with the return of normal peace time conditions, production resumes its normal upward trend. Peace promotes, war obstructs, the normal growth of productive capacity.

INDEXES OF PHYSICAL VOLUME OF PRODUCTION

Year	Stewart's Index,* 1911-1913 = 100, (91 Commodities)	Day's Index † 1899 = 100 (188 Com- modities)	Year	Stewart's Index (Cont.)	Day's Index (Cont.)
1899	65	100	1915	112	170
1900	66	101	1916	117	181
1901	67	103	1917	124	185
1902	77	119	1918	125	184
1903	75	118	1919	120	174
1904	80	121			
1905	86	135	1920	126 ‡	185 ‡
1906	91	144	1921	96	144
1907	89	140	1922	118	184
1908	84	129	1923	144	208
1909	84	147	1924	130	200
1910	96	151			
1911	93	144			
1912	106	166			
1913	101	162			
1914	101	159			

* W. W. Stewart, *American Economic Review*, Volume II, 1921, p. 68. Includes farm materials, forest products, mining products, manufacture and transportation.

† Edmund E. Day, *Review of Economic Statistics*, 1921, p. 20, and July, 1924, p. 201. Includes agriculture, mining and manufacture. Indexes readjusted to 1899 base as 100.

‡ Indexes for series since 1920 obtained by adding Federal Reserve Board index of production of basic materials to the indexes for the earlier period.

Indexes of Major Branches of Production.—The various branches of production do not increase with even pace. Marked differences in rates of increase appear between agriculture, forestry, mining, manufacture, transportation, and other types of industry. The following indexes provide a comparison in rates of growth between agriculture, mining, manufacture and transportation:

Agriculture has increased about 50 per cent in output during the quarter century. This rate of increase is much less than the rate for

any of the other three major branches of production. But although agriculture has lagged behind other industries, it has just about kept pace with the growth of population. On the average, over this entire period, both population and farm production increased about 2 per cent per annum. Moreover, the increase of agricultural output is much less influenced by the ups and downs of the business cycle than are the other branches of production. For instance, both 1908 and 1914 were depression years for mining, manufacture, and transportation, but they were boom years in farm production. Unlike other industries, agriculture is primarily dependent upon weather and climatic conditions, and is only secondarily influenced by the business cycle.

ANNUAL INDEXES OF THE PHYSICAL VOLUME OF PRODUCTION *
(1899 = 100)

Year	Agriculture	Mining	Manu- facture	Trans- portation †	Population
1899	100	100	100	100	100
1900	101	106	101	114	102
1901	89	115	112	118	104
1902	114	123	122	127	106
1903	105	135	124	140	108
1904	116	136	122	141	110
1905	118	162	143	151	112
1906	125	170	152	174	114
1907	112	186	151	191	117
1908	119	154	126	176	119
1909	118	189	155	177	121
1910	122	208	159	207	123
1911	115	207	153	205	125
1912	137	221	177	213	127
1913	122	237	184	244	130
1914	137	225	169	233	132
1915	144	240	189	224	133
1916	126	269	225	279	135
1917	134	288	227	314	136
1918	135	289	223	330	138
1919	137	257	218	291	140
1920	150	293	231	334	142
1921	124	233	179	250	144
1922	138	254	240	276	145
1923	138	348	283	333	147
1924	139	322	262	320	150

* Edmund E. Day, *Review of Economic Statistics*, 1921, p. 20; and 1925, p. 215.

† Revenue ton-miles of freight, computed from Annual Reports of Interstate Commerce Commission.

Mining has increased output more rapidly than either agriculture or manufacture. The increase of more than 200 per cent amounts to an average increase over the 25 years of more than 8 per cent per annum.

Mining output has run far ahead of population growth. The short time fluctuations in mining production reflect clearly the slump and boom of the business cycle.

The growth of manufactures is midway between agriculture and mining.¹ The average increase over the period was about 6 per cent per annum. Manufacture increased considerably faster than population. The short time fluctuations are more direct reflections of the business cycle than those of any other branch of production. The manufacturing cycle is at the heart of the business cycle. This is highly important, because the product of the factories is a recapitulation of the product of other major industries. The great bulk of the products of farm and of mine pass through the hands of the manufacturers before they are ready for human use. Nearly all raw materials are fed into the factories, and nearly all finished products come from the factories. Consequently, manufacture offers a comprehensive picture of changes in all other lines of production. The record of growth of manufacture is an evidence of persistent increase in the means of material well being of the nation.

The growth of transportation is greater than that of agriculture or manufacture, and about the same as that of mining. The average increase over the period was above 8 per cent per annum. The meaning of this growth is that each unit of goods produced is being moved about more and more from place to place. Place utilities constitute an increasing proportion of the total utilities created by production. The task of moving goods tends to increase considerably faster than the task of making goods. More and more production consists of carrying commodities great distances. The transportation cost per unit of product thereby tends to become relatively greater year by year.

Production in all lines is capable of being maintained at maximum capacity only when a suitable economic balance exists. The experience of the past indicates that the mere automatic working of laws of competition or of supply and demand is not sufficient to maintain this balance. Every few years production becomes unbalanced. Too much of certain goods has been produced; too little of certain other goods has been produced. These maladjustments in production are a fundamental factor in determining whether the country enjoys prosperity or suffers depression. The unbalancing of production recurs time after time. It is primarily a problem of the business cycle, and receives detailed consideration in a later chapter on that subject. In the broadest sense, the balance of production involves every phase and process of economic life, and the problem therefore permeates all parts of the science of economics.

The Net Value Product.—When raw cotton goes into a textile factory, it has a certain value. When it emerges in the form of cloth,

¹ While stressing quantity of production at this point, the writer does not wish to seem to neglect quality of product or human consequences of production. Quantity alone obviously is insufficient if the other aspects are lacking.

it has a materially enhanced value. The difference between the value of the product before and after manufacture is the value added to the goods by that particular industrial process. The same principle may be applied to all forms of industry. The net value product of any industry is the market value added by that industry to the materials, supplies or services which it obtains from outside sources. The excess of the value of the output over that of the materials used in production is the value added by the industrial establishment in question. If a concern can take raw materials worth only \$1,000,000 and convert them into finished products worth \$2,000,000 the value added is \$1,000,000. This value added is paid out to employees as wages, to land owners as rent, to bankers and investors as interest, to stockholders as dividends, and any remainder is put back into the business. This definition of value product necessarily oversimplifies the matter somewhat. The calculation involves complicated statistical and accounting methods, but after all this technical computation is completed, the result represents the simplified definition of value product as given here. The following table shows the relative importance of the main lines of industry in the total national production. Their relative importance is determined by the net value product added by each line of production.

PERCENTAGES OF THE NATIONAL INCOME PRODUCED BY VARIOUS INDUSTRIES,
AVERAGE FROM 1909 TO 1918 *

Agriculture	17.43
Mineral production	3.24
Manufacturing	29.97
Transportation	9.28
Banking	1.45
Government	5.61
All other	33.02
<hr/>	
All industries	100.00

* National Bureau of Economic Research, *Income in the United States*, Volume I, p. 23; and Volume II, pp. 244-245.

The equity of the different shares is not here in question. The basis for this distribution of the national income is discussed in later chapters dealing with the shares in distribution, including profit, rent, wages, and interest.

These estimates show manufacture to be the most important single branch of industry, with nearly $\frac{1}{3}$ of the total value product to its credit. Agriculture is second in importance, with more than $\frac{1}{6}$ of the total. Transport shows a value product about $\frac{1}{2}$ as large as agriculture, or less than $\frac{1}{10}$ of the total value product. Merchandising is the largest single item included in the classification "all other industries," and is about equal in importance to transport. Mining, banking and government are relatively low in value product. Government has increased its importance in recent years, and now yields upwards of $\frac{1}{12}$

of the total value product. Mineral production is about $\frac{1}{30}$ of the total and banking about $\frac{1}{50}$ of the total. The three largest branches of production from this standpoint are agriculture, manufacture, and transport. These three combined give more than half of the national income. The net value product of different industries is a useful indication of their relative importance, and of their relative contributions to the total national income. It helps in ascertaining whether production is out of balance in any direction and in measuring the cause of maladjustment.

Net value product is also a useful method of measuring the year to year fluctuation in a given branch of production. The following table shows the movements in volume of manufacture since 1899.

VALUE PRODUCT ADDED BY MANUFACTURE *

Year	Prices of Current Year	Adjusted for Price Changes to Show Fluctuations in Physical Volume, Base Year 1914 †
1899	\$4,831,075,210	
1904	6,293,694,753	
1909	8,529,260,992	
1914	9,878,345,893	\$9,878,345,893
1919	25,041,698,490	12,336,000,000
1921	18,316,666,082	11,894,000,000
1923	25,853,151,000	16,787,000,000

* United States Census of Manufactures, 1921 and 1923.

† Adjusted by the all commodities index of prices, as computed by the United States Bureau of Labor Statistics.

A comparison of the period from 1914 to 1923 shows a striking difference between the money value of product and the physical quantity of product. It also shows the year 1923 to be the high point in manufacturing achievement in the history of the country.

The Size of the National Income.—The aggregate national income is taken to consist of the commodities and services produced by the people of the country or obtained from abroad for their use, with the omission of goods for which no price is commonly paid, for example the services of housewives. In order to express the national income as an absolute sum, it is necessary to reduce all goods and services to their dollar values. The national income stated in dollars is a pecuniary concept. Behind the dollars are the goods and services which they represent.

In estimating national income in dollars, distinction has to be made between dollars of steady value and dollars of changing value. When prices of all kinds of articles increase, and the average price level rises, the value of everything in dollars is increased. But it does not necessarily follow that physical wealth has increased accordingly. For in-

stance, if the wheat crop one year is 1,000,000,000 bushels and sells at \$1 per bushel, its value is \$1,000,000,000; but if the wheat crop the next year is the same in number of bushels and sells at \$2 per bushel, its value is \$2,000,000,000. The bushels are the same, but the dollars are doubled. To overcome this discrepancy, the value in dollars may be adjusted to some base year, taken as 100. For instance, the following table adjusts the dollars of national income to the value of 1913 as 100. The result is two pecuniary measures of national income. The first is expressed in dollars of the current year, without reference to changes in price levels. The second is expressed in dollars of a constant value, in this case the dollars of 1913. The following table presents this twofold estimate of the income of the United States:

THE PECUNIARY MEASURE OF THE NATIONAL INCOME *

Year	Income in Dollars of Current Year	Income at Price Level of 1913	Price Index, Weighted 1913 = 100
1890	\$9,600,000,000 †		
1900	13,100,000,000 †		
1910	31,200,000,000	\$31,800,000,000	98.0
1911	31,100,000,000	31,700,000,000	98.0
1912	32,400,000,000	32,700,000,000	99.1
1913	33,500,000,000	33,500,000,000	100.0
1914	32,700,000,000	32,500,000,000	100.6
1915	35,900,000,000	35,100,000,000	102.3
1916	45,700,000,000	40,200,000,000	113.7
1917	54,100,000,000	39,700,000,000	136.1
1918	62,000,000,000	38,600,000,000	160.7
1919	66,800,000,000	37,600,000,000	177.7
1920	74,158,000,000	36,300,000,000	204.2
1921	62,736,000,000	36,200,000,000	173.3
1922	58,500,000,000 †	.....	....
1923	67,000,000,000 †	.....	....
1924	65,000,000,000 †	.....	....

* National Bureau of Economic Research, *Income in the United States*, Volume II, p. 337.

† According to estimates by the National Industrial Conference Board. See also estimates by W. R. Ingalls, in *The Annalist*, June 16, 1924, and by Benjamin M. Anderson, Jr., in *The Annalist*, January 5, 1925.

The money income of the nation is quite different from the physical income. The war emphasized this distinction with perfect clearness. The money income rose from 45 billions in 1916 to 66 billions in 1919, but the dollars of the latter year were so much lower in purchasing power that they actually commanded fewer goods than in 1916. The general welfare of the community rests upon the quantity of goods and services available for use and consumption. It is no advantage to have twice as many dollars of wealth, if the goods and services behind them

are the same as before. The severe fluctuations in prices make it impossible to consider production in terms of money as a measure of wealth in terms of concrete goods. Endless obscurity and confusion result from the loose and careless assumption that money wealth is material wealth. There is a chasm of difference between the two, and the difference must at all times be kept in mind in measuring the income of the nation.

Production Per Capita.—The increase in physical production needs to be compared with the increase in population. Material progress requires increased production per capita. Below are given indexes of per capita output for all production and for production in certain major lines.

INDEXES OF PER CAPITA PRODUCTION OVER A QUARTER OF A CENTURY
(1899-1924)

Year	All Industries	Agriculture	Mining	Manufacture	Transportation
1899	100	100	100	100	100
1909	121	97	156	128	146
1919	126	99	185	158	207
1923	141	94	228	188	226
1924	133	99	207	171	213

Various significant conclusions are apparent. Total production per capita increased just about 33 per cent, during the 25-year period. At this rate, physical output per capita would double in about 70 to 80 years. Or, to express the same fact from a different viewpoint, the average rate of increase in per capita production is from 1 to 2 per cent per annum. The secular trend of production per capita has been upward. The decade centering about the World War shows a slowing up in the rate of material progress. The indexes bear out the inference that war obstructs and delays productive capacity and industrial growth. The World War was a setback to economic progress.

Farm production per capita remained practically constant throughout the period. This was due to rapid increases in efficiency on farms rather than to any increases in farm population. The population on the farms probably declined slightly during the period. But the total population of the country increased from 74 million in 1899 to 113 million in 1924. *The farms, without increase of labor force, were feeding and clothing about 39,000,000 more people in town and city at the end of the period than at the beginning.*

Mineral output per capita more than doubled. Manufacturing output per capita increased more than 70 per cent. The new population of the quarter century went almost wholly into urban communities and

devoted the new labor power to mining, manufacture, and the industries closely related to them, such as transportation and merchandising.²

This tendency is clearly evidenced by the fact that the volume of transportation per capita more than doubled during the 25 years. Raw materials are being carried greater distances from farm and mine to factory, are being shipped farther from one factory to another before manufacture is completed, and are being distributed at greater distances from the centers of manufacture. Production per capita consists more and more of keeping goods in transit. Commodities travel far longer distances than formerly in their itinerary from the soil, the forest, and the mine to their destination in consumers' hands.

Production Per Worker.—The following indexes show the relative increases of production per worker in various major occupations. The period taken for the estimates is the 20 years from 1900 to 1920.

INDEXES OF PRODUCTION PER WORKER, 1920, COMPARED WITH 1900 AS 100

Agriculture	133
Manufacture	110
Mines	136
Railroads	147 *

* Revenue tons one mile.

Manufacture has shown least advance among the four major groups, and railroads have shown most advance. Agriculture and mining each increased the efficiency of workers about one-third. Doubtless one main reason for the relatively mild increase in manufacture is the intro-

² Below are estimates of per capita income in dollars for the decade 1910 to 1919. In dollars of the current years, a striking increase in money income is shown. The leap is from \$338 to \$637. But when changes in price levels are eliminated, and dollars are reduced to a common purchasing power, the increase is only from \$345 to \$359. The smallness of this increase is due primarily to the World War.

PER CAPITA MONEY INCOME, 1910-1919

Year	In Dollars of Current Year	Purchasing Power at 1913 Price Level
1910	\$338	\$345
1911	332	338
1912	340	343
1913	344	344
1914	330	328
1915	357	349
1916	449	395
1917	525	385
1918	595	371
1919	637	359

From National Bureau of Economic Research, *Income in the United States*, Volume II, p. 338.

duction of the 8-hour day in industry during the period.³ The main reasons for an increase in efficiency have been improvement in science and engineering as applied to management, addition to the amount of capital available per worker, utilization of more mechanical energy per worker, and education and training of labor. The net outcome is a greater output per laborer, although the laborer works from 2 to 4 hours less per day now than at the beginning of the period.

Countless instances could be cited of striking increases in output per worker. During a thirty-year period, the annual steel production per worker increased from 267 to 709 tons. During a twenty-year period, the annual gasoline production per worker increased from 23,000 to 71,000 gallons. During a twenty-year period, the daily bituminous coal production per worker increased from less than 3 to more than 4 tons. During a ten-year period, the annual automobile production per worker increased more than three times. Improved machinery, applied science, industrial engineering, and suitable labor, have combined to make these increases possible. The record embodies tangible achievements in the advance of the material wealth of the nation.

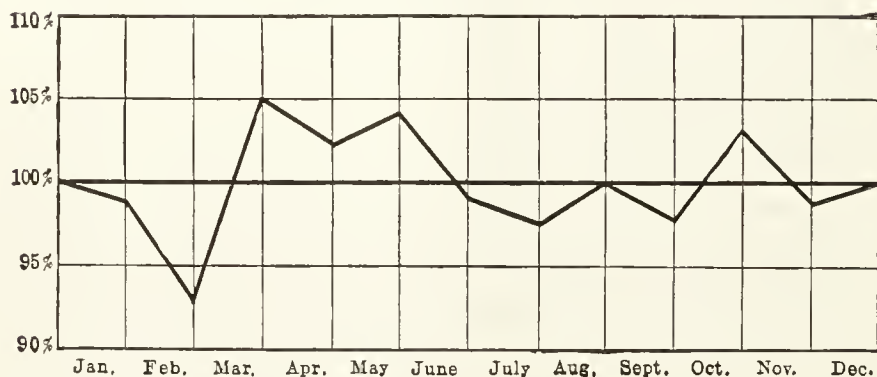
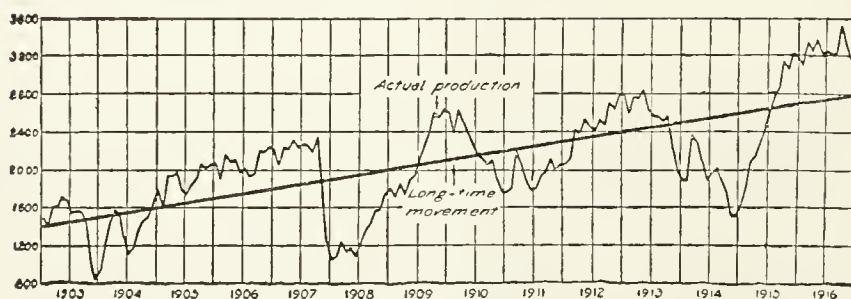
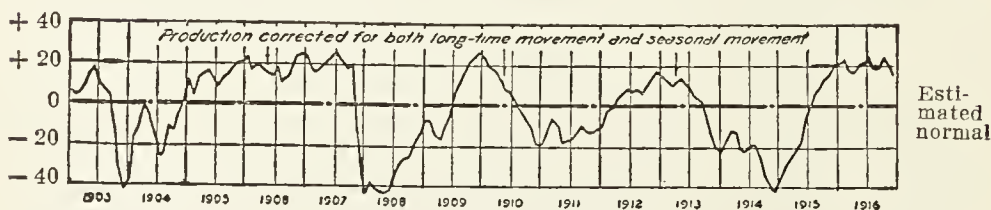
Main Types of Economic Fluctuation.—Older economic discussions dealt with the main time variations in economic activity in an indefinite and loose manner. They recognized a distinction between long time and short time variations, but could not reduce these variations to any definite measurement. The traditional discussions abound in references to what will tend to be true in the long run and what will tend to be true in the short run. By the aid of modern statistics, it has been possible to reduce these vague notions of time variation to definite concepts. Economic fluctuations fall into four major types: *seasonal*, *secular*, *cyclical*, and *residual*. The accompanying diagrams show these four types of fluctuation with reference to pig iron production. Pig iron is taken for illustrative purposes because it is a basic product in modern industry, but the same type of chart may be constructed for any other commodity or any group of commodities.

The *seasonal* fluctuation is the month to month change in production. Pig iron production on the average is lowest in February and highest in March. Each product has its own peculiar seasonal movement. Bituminous coal production is high in winter and low in summer, whereas building is low in winter and high in summer. Retail clothing sales are highest in spring and fall. Holidays, temperature, and weather conditions affect the seasonal fluctuation, and make it different from country to country and from section to section in the same country.

The *secular* trend of production is the long time rate of growth or decline. The trend of pig iron production is one of growth, but if we were to chart lumber production, for instance, it would show a decline over a similar period. The average annual rate of growth of pig iron production shown in the accompanying diagram is 1,200,000 gross tons.

³In many instances plant output has increased under the shorter working day. Further data on this point will be found in later chapters on labor problems.

MAIN TYPES OF FLUCTUATION IN VOLUME OF PRODUCTION

I. Seasonal Fluctuation in Pig Iron Production *
(Monthly average = 100%)II. Secular Trend in Pig Iron Production †
(1903-1916) (Unit: 1,000 gross tons)III-IV. Cyclical Fluctuation (together with Residual Factors) in Pig Iron Production ‡
(Percentages of deviation from estimated normal)* From seasonal indexes by E. E. Day, *Review of Economic Statistics*, 1923, p. 58.† Homer B. Vanderblue, *Problems in Business Economics*, p. 31.‡ *Ibid.*, p. 31.

Where long time movements can be charted in this manner, the concept of what will be true in the long run can be reduced to a definite and concrete quantity.

Cyclical fluctuation is the series of changes from prosperity to depression and back again which repeat themselves in modern business. The third diagram represents fluctuation due to the business cycle. The horizontal middle line is an "estimated normal." It is what production would have been if the average rate of growth and the average seasonal fluctuation had prevailed. It is what production would have been if there were no business cycle and no abnormal changes in production. The waved line in the same diagram presents a comparison of cyclical production with the computed normal. This comparison involves a process of "statistical correction." Actual production each month is corrected by eliminating both long time and seasonal movement. What is left is cyclical movement. Comparison of corrected figures of production with estimated normal shows years of depression in 1904, 1908, 1911, and 1914, and years of greater or less prosperity between these dates.⁴

Residual fluctuations include all changes not contained in secular, seasonal, and cyclical movement. The third diagram is not strictly and absolutely a diagram of the pure business cycle. It includes also some variation due to unusual and extraordinary influences. Predominantly it represents the business cycle, but not wholly. The residual factors may be new inventions, political influences, new foreign markets, or any other exceptional change. Earthquake, war, revolution, or fortuitous change may be responsible. For instance, if the line of pig iron production is extended through the World War period, it shows extraordinary advance, due in great part to the war demand for munitions. And production in 1919 and 1920 was drastically affected by the steel strike and effort at unionizing the mills made at that time. These unusual factors influence production, and they must be kept in mind in making an interpretation of the charts of production. The residual factor is usually included in the cyclical curve of production, and although it modifies somewhat the meaning of the curve, it does not obscure the basic fact of the cyclical type of variation as a predominant and paramount feature of production.

The Technology of Production.—The output of goods results from the technical methods and processes prevailing at the time. The accumulated store of scientific, mechanical and engineering knowledge determines the capacity to produce wealth. The vast fund of technological information and skill governs the volume of production and the rate of progress in material well-being. Advances in the production of goods waits upon advances in the state of the industrial arts. Production is a matter of technology.

⁴ See chapter on Business Cycles for more detailed explanation of the cyclical type of fluctuation.

In modern production this technology is the machine technology.⁵ From every economic standpoint, this is the age of the machine. The machine casts its influence over the far corners of the economic world and leaves no part untouched. It is all pervasive and all inclusive. The economic system takes its character from the machine more than from any other single factor.

The paramount economic significance of the machine technology is that it serves to increase the output from a given amount of labor. Owing to the use of machinery, the average worker today produces more than twice as much as in 1850. The mechanical capital which makes this increase possible is more than four times greater than in 1850. Superior capital equipment, superior use of machinery, superior production technology, these are the factors leading directly to superior output of goods from a given expenditure of labor.

The Division of Labor, or Specialization.—A primary feature of the machine technology is the minute division of labor. The process of making a complete product is separated into detailed fractional parts. The whole task is broken up into its elements. Labor is specialized in the performance of only one of the collective series of operations necessary to the production of the completed article.

Adam Smith, writing before the Industrial Revolution was genuinely under way in England, marveled at the division of labor under handicraft manufacture. Even before the invention of the steam engine, the spinning mule, or the cotton gin, Adam Smith could declare, "The greatest improvement in the productive powers of labor, and the greater part of the skill, dexterity, and judgment with which it is anywhere directed or applied, seem to have been the effects of the division of labor."

The advantages of this handicraft division of labor were: First, that by devoting all of his time to one task, the laborer became more proficient and adept in the operation; second, that by confining attention to one narrow task, the laborer's period of apprenticeship was shortened; third, that by sticking to one task, the laborer eliminated the waste motion of walking about, carrying material, changing motions, and the like; fourth, that the individual peculiarity and aptitude of the worker could be better adapted to the type of work where his efficiency would be greatest. Increased proficiency, shortened apprenticeship, economy of time and effort, adaptation of the worker to his work,—these were the classic advantages attributed to the division of labor in the pre-machine era.

When the machine came into vogue, these advantages of specialization remained, but in greatly modified forms. The industrial revolution was a revolution in the division of labor itself. It carried specialization far

⁵ This is not to overlook at all the many survivals of handicraft methods found all about us. Many trades, such as building, still rely heavily upon non-machine processes. Agriculture still involves a vast amount of hand work. But after all, these survivals are not the main current. They are tributaries to the main current, which is machine production.

beyond the boldest conceptions of the economists of Adam Smith's day. It reduced the division of labor to such fine points that a process which impressed early economists as a marvel of specialization became subdivided into scores or hundreds of ultra-minute operations performed by separate laborers. The hand division of labor was one thing; the machine division of labor is quite another thing. It is vastly more complex and vastly more refined. And, what is of primary concern to economics, it is a factor which accounts for the marked increase in productive capacity in the last century.

Standardization.—The degree to which machine methods can be carried in any branch of production depends upon the degree to which processes can be standardized. Whatever cannot be standardized cannot be done by machine processes. To be mechanized, a given task must be reduced to unit motions. If these unit motions can be repeated time after time with accurate sameness, they can be standardized. Such standard unit motions are the essence of the machine process. They can be repeated millions of times, with uniform accuracy, with superhuman speed, and by the application of nonhuman energy. By standardization, there occurs a transfer of skill from the craftsman to the machine. What was formerly a manual skill becomes a standardized mechanical skill.

There are still a great many processes which are not done by machinery. They are not done by machinery because as yet they have not been standardized. Goods requiring personal skill, artistry, and taste defy the machine principle. Articles of exclusive fashion still require the dexterity of hand labor. However, even in this type of workmanship, the machine has made gradual headway, and has broken down one after another of the delicate crafts into a machine operation. The onrush of the machine has been unrelenting, and more and more it has tended to become all embracing.

Not only has standardization come to dominate the machine itself, but also it has come to dominate the whole organization of industry and business which surrounds the machine. There are standards of measurement, standards of quality, standards of performance, standards of design, and standards of labor.

(a) *Standards of Measurement.* Industrial organization requires units of measurement which have a common meaning in all parts of the country, and in all parts of foreign countries. These units refer to length, area, volume, weight, density, pressure, energy, heat, light, and electricity. The terminology includes meters, grams, pounds, inches, horsepower, calories, thermal units, ohms, amperes, volts, watts, and a long list of similar units. Standard gauges of tools and machinery, standard sizes of bolts, nails, and parts,—all of these represent the universal effort to standardize.

(b) *Standards of Quality.* Steel, coal, and other raw materials are tested in laboratories of industrial chemistry to insure that they measure up to specifications necessary in a given process of manufacture. Physical tests of tensile strength, hardness, and texture are likewise required.

The buyer of commodities requires that they shall be of standard fineness, standard composition, standard finish, standard texture, standard structure.

(e) *Standards of Performance.* The operating efficiency of machines and equipment rests upon standards of speed, output, and durability. Equipment which cannot measure up to the strains and loads placed upon it goes into the discard. Unless machinery can perform to standard, it is unfit for productive use.

(d) *Standards of Design.* In the desire to cater to novelty, personal taste, and exclusive style, production has often suffered from an overdiversification of design. Excessive multiplication of styles and designs is wasteful and costly. The remedy for such waste lies in the simplification of designs. Simplification means reducing designs to standards. For instance, a tool manufacturer reduces his line of product from 2,752 specialty items to 761 standard items. A manufacturer of farm wagons reduces his line from 1,200 makes to 90 makes. A manufacturer of pipe fittings reduces from 17,000 items to 610, and a manufacturer of men's hats reduces from 100 colors and shades to 9. Standardization displaces specialty in design, thereby making possible a greater use of machinery in production and a corresponding reduction of manufacturing costs.⁶

(e) *Standards of Labor.* Labor itself is standardized by the machine régime. Job analysis and time and motion study provide a standard task. Rate setting and scientific wage payment involve a standard wage scale. Personnel selection provides a standard workman to fit a standard job. Standard speeds of work, standard routine in shop practice, standard union rules, dominate the worker. In consequence, repetition, monotony, and a dead level of uniformity tend to characterize the workshop.

The Automatic Machine and Quantity Production.—The complete fruition of the principle of standardization is the automatic machine. The various parts of a given product are reduced to standard sizes and shapes. Each part is interchangeable with the corresponding part of any other sample of the product. For example, a Ford automobile has about 5,000 parts. If a dozen such cars were taken entirely apart, and the various items shuffled in a general mass, and a dozen new cars were reassembled, the parts would fit the new cars as well as the old. The interchangeability of parts makes possible quantity production by the automatic machine.

This principle has been applied to a wide variety of products. Locomotives, watches, typewriters, dynamos, munitions, cash registers, agricultural implements, cloth, newspapers, and a broad variety of other products are included. Most package goods, bottled goods and canned goods rely upon automatic processes. The president of a large chain of retail stores, manufacturing and selling 5,000 different kinds of articles,

⁶ See R. H. Lansburgh, *Industrial Management*, Chapter 14; also Herbert Hoover, in *Scientific Management Since Taylor*, edited by E. E. Hunt, Chapter 13.

states that production depends upon "standardization, in which lies the future of large volume business." He adds, "The way to manufacture most cheaply is to establish a separate department for each article and to put it through in continuous repetitive process with a minimum of human handling."⁷

"Without touch or aid of human hand, an automatic machine produces complete one-dram bottles at the rate of 165 per minute."⁸ Of the 30 operations required in the manufacture of certain farm implements, one operation requires a man to feed sheets of metal into a machine which cuts them automatically into a standard pattern at the rate of 20,000 per day.⁹ The automatic switchboard is fast eliminating the telephone central. Office work has been largely taken over by automatic machines for typing, sorting, scaling, classifying, filing, addressing, computing figures, and keeping records. The Webb press for newspaper printing turns huge cylinders of paper into finished news sheets at the rate of 288,000 eight-page papers per hour.

The automatic principle is capable of all degrees of application. Semi-automatic machines require a certain amount of human control and guidance, and slightly automatic machines require a great deal of human direction. Any industry represents a combination of these varying degrees of applying the automatic principle. In the steel industry, "the pig casting machines, the open hearth charging machines, not to mention the blast furnace, skip hoist, electric crane, and the mechanically operated rolling mills have revolutionized the industry. For the most part, the steel worker of today is simply moving levers, or watching and waiting while the heat and the machinery do the work."¹⁰ The automatic principle runs through all these processes in one form and degree or another. In the more perfect forms, automatization of processes increases the productive power of labor from 75 to 100 times.¹¹

This great increase in productive power depends upon mass organization of the productive process. Repetitive manufacture of interchangeable parts, quantity output of commodities, low cost per unit of product, these are the heart of the process. In this type of manufacture, the United States leads the world. The United States not only excels in the automatic manufacture of consumable products, but in the automatic manufacture of machinery itself. For instance, automatic textile machines and automatic boot and shoe machines are themselves made by automatic machines. Interchangeable parts make possible machine-made machines. These machines are an important export of the United States to countries in Asia, Africa, and South America, which are in the initial stages of an industrial revolution. Other nations excel the United States in lines of production where cheap labor is the chief factor in cost of

⁷ *System*, Vol. 39, p. 355.

⁸ United States Tariff Commission, *Annual Report*, 1918.

⁹ C. H. Parker, *Atlantic Monthly*, Volume 125, pp. 12-22.

¹⁰ *Industrial Management*, Jan. 1, 1921, p. 63.

¹¹ *Scientific American Supplement*, Volume 85, p. 278.

production. But the United States excels other nations in most lines where principles of automatic machinery, standardization, and mass output can be applied.¹²

The Productive Character of the Machine.—From an economic viewpoint, what are the essential characters of the machine? We have discussed the principles of division of labor and of standardization which make the machine possible, but we should carry the discussion further by inquiring: Wherein does the power of the machine consist? Why is the machine so much more effective than hand work with tools?

First, the machine uses nonhuman *energy* for its motive force. It utilizes the outside energy of coal, water, oil, and electricity. The machine is more effective than handicraft because it uses horse-power and kilowatt-hours. Second, the machine has superhuman *speed*. Wheels may revolve thousands of times per second, steel prongs and fingers may manipulate at an invisible speed, and in comparison, human hands are clumsy and slow. The machine is more effective than handicraft because it possesses swiftness of action. Third, the machine has superhuman *accuracy*. In the manufacture of machine tools, a variation of $\frac{1}{20000}$ part of an inch can be detected immediately and with perfect accuracy. No laborer can repeat his motions with such perfect precision. The machine is more effective than handicraft because it can repeat its processes time after time with closest accuracy. Fourth, the machine can concentrate enormous energy in small space. A hundred thousand slaves have enough combined energy to haul a freight train,

¹² The automatic machine received its first marked impetus in the United States from the manufacture of the automobile. The process is carried to the highest point in the Ford plants. Henry Ford has described leading features of the automatic process in his plants as follows: "A Ford car contains about 5,000 parts—that is counting screws, nuts, and all. Some of the parts are fairly bulky and others are almost the size of watch parts. The great economies began in assembling and then extended to other sections, so that, while today we have skilled mechanics in plenty, they do not produce automobiles—they make it easy for others to produce them. Our skilled men are the tool makers, the experimental workmen, the machinists, and the pattern makers. The rank and file of men come to us unskilled; they learn their jobs within a few hours or a few days. If they do not learn within that time, they will never be of any use to us. The net result of our principles is the reduction of the necessity for thought on the part of the worker and the reduction of his movements to a minimum. He does as nearly as possible only one thing with only one movement. The assembling of the motor, formerly done by one man, is now divided into eighty-four operations—those men do the work that three times their number formerly did. Some men do only one or two small operations, others do more. The man who places a part does not fasten it—the part may not be fully in place until after several operations later. The man who puts in a bolt does not put on the nut; the man who puts on the nut does not tighten it. No workman has anything to do with moving or lifting anything. When we cast the first 'Model T' cylinders in 1910, everything in the place was done by hand; shovels and wheelbarrows abounded. Now we have about 5 per cent of thoroughly skilled moulders and core setters, but the remaining 95 per cent are unskilled, or to put it more accurately, must be skilled in exactly one operation which the most stupid man can learn within two days. There is not a single hand operation. If a machine can be made automatic, it is made automatic. We have less than 50,000 men on automobile production at our highest point of around 4,000 cars a day. A million men working by hand could not even approximate our present daily output." Henry Ford, in *My Life and Work*, edited by Samuel Crowther, pp. 78, 79, 80, 81, 83, 87, 89, 90.

but they cannot concentrate their energy into the small area necessary to drive a locomotive piston. Pressure of thousands of tons per square inch may be exerted by steel arms, but not by human. Human joints give way under a few hundreds of pounds pressure, but steel axles sustain thousands of tons. The machine is more effective than handicraft because it can concentrate immense power and *pressure* per square inch. Fifth, the machine overcomes the friction which always limits the endurance of labor. The laborer breaks down from fatigue, but the machine is comparatively *fatigueless*. It never tires out. It never suffers from nerves. It never goes mad from monotony. It has no psychoneurosis. Lubrication relieves the friction of the machine, but cannot relieve the fatigue of labor. The machine is more effective than handicraft because it is immune from human fatigue.

The power of the machine is, then, fivefold: it harnesses nonhuman *energy*, moves at superhuman *speed*, repeats with superhuman *precision*, focuses superhuman *pressure* and strain per square inch, and obviates the factor of human *fatigue*. These are the characteristics of the machine which explain its productive power.¹³

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¹³ The machine has often been defined mechanically as a complex tool. The objection to this definition is that it tells us nothing significant. What is a complex tool? The machine is an embodiment of two principles,—the lever and the inclined plane. Further modification of these two principles gives the wedge, the screw, the wheel and axle, the toothed wheel, and the cord and pulley.

CHAPTER V

PROBLEMS OF PRODUCTION

The Localization of Industry.—Various geographical areas specialize in the production of particular commodities. The southern portion of the United States specializes in production of cotton, the western portion in wheat and corn. Brazil is a special producer of coffee, Cuba of sugar, the Orient of silk. Paramount factors in such specialized production of foods and crops are the climate and the nature of the soil. Mineral production is also highly specialized territorially, with respect to the geological deposits of nature. Thus, coal mines center at the beds of coal, and copper mines at the beds of copper.

Manufacture specializes with respect to a wider variety of governing factors. These factors include nearness to raw material, nearness to markets, nearness to power and fuel, nearness to suitable labor supply, nearness to capital supply, climatic advantages, the momentum of an early start, and artificial advantages. Location in a particular area is the result of some combination of these various forces. Due to different combinations of these advantages, the manufacture of automobiles is heavily concentrated in Detroit, Michigan; of rubber goods, in Akron, Ohio; of steel, in Pittsburgh, Chicago, and Gary; of chemicals, near Niagara Falls; of meat packing, in Chicago, Illinois; of collars, in Troy, New York; of gloves, in Gloversville and Johnstown, New York; of silk and pottery, in New Jersey; of men's and women's clothing, in New York City, Rochester, and Cleveland. The bulk of manufacturing in the United States concentrates in the northern and eastern portions. This concentration is largely due to the fact that fuel and power in the form of coal and water power are located in those sections. In Europe, manufacture centers around the coal beds of England, France and Germany. Manufacture follows coal.

Specialization occurs not only between different parts of the nation, but between different nations. International specialization is illustrated by the prominence of chemicals and electrical supplies in Germany, of articles of taste, luxury and fashion in France, of automatic machinery in the United States, of cotton and woolen manufacture in England, and of raw material production in South America. Each country tends to specialize in the production of those commodities for which it is most fitted. Each country tends to apply its labor in those lines where it is most effective. By allowing each country to specialize in those lines where its labor yields the greatest results, all nations obtain a larger net product. Specialization by geographical areas is advantageous be-

cause it leads to a greater aggregate product. The international division of labor increases the total output of the nations as a whole.

The location of industry in a given community is a matter of evolution. Certain areas begin with grazing and pasturage, develop into wheat and corn production, and later take up detailed lines of manufacture. The line of progress is from extractive industries to manufacturing and commercial industries. Side by side with such forces of change are forces of inertia. Once an industry has established itself in a locality, it tends to persist. A labor supply congregates there, bankers supply financial accommodation, buyers form the habit of coming to the community to select their wares, transportation lines become perfected, and the momentum of the early start holds the industry to the original roots. This inertia may exert its influence long after any genuine advantage is to be derived from the localization. The factors which influence localization are a conflict between inertia and the status quo on the one hand and change and evolution on the other.

Not all of the reasons which influence location are defensible on grounds of superior efficiency. Many artificial reasons influence location, without regard to productive efficiency. A municipality may offer a concern tax exemption as an inducement for it to locate there. Variations in state laws affecting taxation, factory inspection, workman's insurance, regulation of business, and the like may be a deciding factor. A chamber of commerce or other business association may offer a concern a free building site or other considerations, as an incentive for a factory to locate in a given community. A business association may endeavor to keep a cut price chain store out of a community by renting or buying up all available space for location. International localization of industry is materially affected by tariffs and subsidies. Such discriminations induce concerns to establish industries where they could not possibly survive without artificial help. A tariff is an incentive for a country to specialize in the production of commodities for which it is least fitted. All of the artificial advantages here mentioned rest upon a lessening of productive capacity but a strengthening of profit making capacity. They involve strategies and discriminations which enable the individual business to make more money, but to do so without making more goods. They are pecuniary or business advantages but industrial and production disadvantages.

Production, and Conservation of Resources.—Conservation is a problem which belongs within the scope of economics, inasmuch as economics is concerned with the economizing of the materials of production. Conservation deals with the *economy* of natural resources.

The uneconomical use of resources grows out of two major causes: a defective technology of physical production and a defective code of business practice and of money making. Both the physical and the pecuniary factor may be illustrated by the history of forestry exploitation in the United States. First, the technology of forestry, and of cutting, manufacturing, and consuming lumber has been extremely

wasteful. The Department of Agriculture in 1922 estimated that, out of a cut of twenty-two and a half billion cubic feet of lumber each year, we waste more than nine billion feet. This waste is attributable to leaving part of the timber on the ground, to failure to utilize by-products, and to inefficiency in mills and factories. Not only is there waste in the current production, but there is only a slight effort to reforest the cut-over areas. The time required to regrow a forest is at the least from 30 to 50 years. The long period of waiting is so expensive that not more than one-quarter of the lumber cut each year is replaced by reforesting. Added to these evils is the fact that abandonment and carelessness have led to preventable fires which have devastated millions of acres. In all these respects, the technology of lumbering has been wasteful. A new technology based upon principles of conservation has been proved both possible and practicable.

The second factor, namely, the standards of private profit and of business practice, have been closely interlaced with the faulty technology. The main parts of the forest areas were permitted by the Government to fall into the control of private ownership. Lumber corporations bent solely upon immediate profit stripped the forests of their wealth, with little or no regard for the future of the country's resources. The scruples of many of the lumber companies were inadequate protection of the public interest. The incentive to "cash in" once and for all on the product as quickly as possible was increased by the fact that as long as the timber was standing, it was being "eaten up" by unscientific taxation. The methods of making money profits were not the methods suited to conserve natural resources.

Beginning after 1900, conservation policies received serious attention. Theodore Roosevelt, as President of the United States, exerted a powerful influence in the direction of conservation. The conservation program included far-reaching changes in both the physical technology of lumbering and the methods of money making. Fire prevention, reforesting, utilization of by-products, efficiency in mills and factories, development of substitutes for wood, and scientific laboratory research have been leading aspects of the new technology. Withholding forests from private ownership, leasing by the Government to private operators, regulation of lumber corporations, scientific taxation policies, and education in new standards of business practice have been leading aspects of the new business tactics. Improved technology and improved business standards make possible a checking of our profligate waste of timber resources. Proper technique of production and of business promises to stop the exhaustion of an invaluable natural resource, and to give permanence and stability to a basic national industry.

Natural resources are of two kinds: those which are replaceable, and those which are non-replaceable. Forestry and agriculture represent resources which are replaceable. Proper fertilization of the soil, rotation of crops, and cultivation are capable of indefinitely renewing the fertility of the soil. On the other hand, coal, oil, and natural gas repre-

sent non-replaceable resources. A coal mine, once exhausted, can never be renewed. At present rates of increase in consumption, our coal resources cannot be expected to last more than three generations, and our petroleum resources more than one generation.¹ All of these industries suffer from a wasteful technology of production and from a faulty system of business and of profit making.

Conservation, on both the technical and pecuniary sides, requires the guidance of the State. Private initiative has never given evidence of being adequate to the task of formulating and executing effective conservation policies. Conservation is distinctly an economic function of Government. The policies which Governments have undertaken include education and publicity, fire prevention service, Government ownership of resources with either public operation or leasing to private operators, legislation compelling economical methods of production, regulation of competition, prosecution of fraud, and laboratory research.

Too often a nation boasts of the size of its production, without regard to the effect of volume of output upon exhaustion of resources. Mere size of wealth may be an economic curse, if it is attained by waste and destruction of natural resources themselves. Production which rests upon unnecessary destruction of resources is uneconomical production. A startling part of our production in the past has rested upon this reckless and heedless process of exploitation. The last two decades have in a degree witnessed an awakening to the fact that this type of production is utterly unnecessary and unjustifiable. Production with conservation of basic materials is urgently demanded by every consideration of sound economics.

Coördination of the Specialized Machine Processes.—The mass of specialized machines, specialized laborers, and specialized processes has to be coördinated into a harmonious whole. The individual laborer or the individual machine is useful only when combined with many other laborers and machines, not only in the same plant, but in other plants scattered over the world. A single workshop may draw its materials from the five continents and ship its products around the world. It interlocks with the enterprises from which it receives supplies and the industries to which it turns over its output for further manufacture or for processes of distribution. The single plant is interdependent with that world-wide network of plants engaged in extracting raw materials from the earth, transporting them by land and water, guiding their course by electric and written communication, loading and unloading them at terminals and plants, feeding them into the machines, shipping them out to distributors, and moving them into the hands of consumers. Each step in this series of steps must be correlated with all the rest.

¹ Allowance should be made for an electrical revolution in our methods of supplying power. The so-called Giant-Power project, if executed, would provide huge generating stations at waterfalls or coal mines, to transmit energy under high voltages and at great distances. Even if such a project were completed, however, the generating plants would still rely heavily upon coal as an ultimate source of energy. The conservation of coal would remain an urgent necessity.

Each process follows some and precedes others. All parts of the single plant must be articulated with each other, and also with all parts of those other enterprises to which it is related. Coördination within the plant and coördination between plants are alike indispensable to secure the fitting together of the countless technical processes and sub-processes to make a comprehensive, balanced, production system. The team-work of the constituent parts is a compelling necessity.

This technology of coördination involves both physical and pecuniary processes. It is in part a process of moving physical goods, modifying the shape of materials, harnessing energy, manipulating machines. This technique is embraced in the many branches of engineering science. But side by side with this physical technique runs the pecuniary technique of money and prices. This latter technique of the money economy involves all matters of finance, stock markets, private profit, property, ownership, price levels, purchases and sales, business cycles, and the like. In the general scheme of coördination, both engineering and pricing are necessary. In the present chapter, however, we are chiefly concerned with the engineering aspect of the case, and we may leave the pricing technique for consideration in later chapters.

The engineer is the great coördinator of physical processes in the machine technology. The engineer's applied science of organization involves the correlation and administration of countless mechanical and human factors. There are in the United States upwards of 200,000 engineers of one kind and another associated in engineering societies. Twenty-one major societies are united in the Federated American Engineering Societies. Among the constituent societies are the industrial, the mechanical, the civil, the electrical, the mining, and the chemical engineers. A large part of management which is not expressly labeled "engineering" has to do nevertheless with matters of an engineering nature. "Management engineering" is a term often used to designate this class of managerial duties. Management involves planning and control of the work of the specialized engineers. Management comprehends so broad a scope of technical problems that it requires the use of scientific methods in formulating and executing its policies. The outcome of this development is modern scientific management. Scientific engineering and scientific management are prime necessities for bringing coherence and order into the machine technology. "The problem which faces modern scientific management," wrote Frederick W. Taylor, "is the daily control and the direction of what at first appears to be an almost uncontrollable multitude of movements of men, of machines, of small implements, of materials, and of parts in process. Scientific management demands that the acts of the men and the movements of all these men and elements shall be regulated according to clearly defined scientific rules and formulæ."²

² See Frank B. Copley, *Frederick W. Taylor*, Volume I, pp. 358-359. Scientific management has often been called "Taylorism," and Taylor has been called the "father of scientific management." The principles were originally worked out with

Management and engineering are important because they increase the output from a given amount of labor and capital. They make possible a greater product from a given expenditure of energy. However, the degree of proficiency attained in scientific management varies very widely from plant to plant, and the capacity to turn out increased product differs widely. In spite of the proved possibilities of science in management, most production engineers, consulting engineers, and experts in the science of management agree that the bulk of business today is grossly inefficient. In the judgment of conservative engineers, the average enterprise could readily increase its efficiency from 25 to 50 per cent by the application of known and tried principles and practices of management.

In 1921, Herbert Hoover, as Secretary of Commerce, supervised the appointment of a Committee on the Elimination of Waste, representing the Federated American Engineering Societies. The investigations of this committee were conducted by the aid of a staff of 50 engineers. Their investigations covered directly 1,125 separate plants, divided between the building industry, men's ready-made clothing, boot and shoe manufacture, printing, the metal trades, and textile manufacturing.

Four basic sources of waste and inefficiency were discovered:

1. Low production caused by faulty management of materials, plant, equipment and men;
2. Interrupted production caused by idle men, idle materials, idle plants, idle equipment;
3. Restricted production caused by management or labor;
4. Lost production caused by ill health, physical defects, and industrial accidents.

The responsibility for these sources of inefficiency was attributed by these engineers mainly to the shortcomings of management. The gist of these shortcomings is the failure to utilize and apply tried and proved principles of management. The conservatism, inertia, and back-

primary reference to the workshop, but they are applicable in a broad way to all departments of management and to all industries. Taylor formulated his principles as follows:—

"The managers assume the burden of gathering together all of the traditional knowledge which has in the past been possessed by the workmen, and then of classifying, tabulating, and reducing this knowledge to rules, laws and formulæ." This process involves four major duties.

"*First.* Development of a science for each element of a man's work, which replaces the old rule-of-thumb method.

"*Second.* Scientific selection, training, teaching and development of the workman in contrast with the workman's choosing his own work and training himself, as in the past.

"*Third.* Hearty coöperation with the men so as to insure all of the work being done in accordance with principles of the science which has been developed.

"*Fourth.* An almost equal division of the work and the responsibility between the management and the workmen, whereby the management take over all the work for which they are better fitted than the workmen." F. W. Taylor, *Principles of Scientific Management*, p. 36. See also *Scientific Management Since Taylor*, edited by E. E. Hunt.

wardness of management are at fault. The principles and the technique of efficiency, already successfully applied to pioneer and progressive plants, are available but unused. Some indication of the extent of loss and waste from managerial inefficiency is contained in the following detailed findings of the engineers: Faulty planning of material caused labor engaged in shoe production to be idle more than 35 per cent of the time. Faulty planning of work by management caused a loss of one-third during the normal operation of clothing factories. Improper organization of the men's ready-made clothing industry accounted for a loss of 40 per cent in effectiveness. In the printing plants of New York City, less than one-fifth of the plants had any system of cost accounting; the other four-fifths lost money during 1919. The metal trades were operating at about 60 per cent of normal output. Labor turnover was found to be needlessly high, and few factories were taking advantage of any personnel system to reduce the consequent loss. The manufacturing equipment in clothing, printing, and shoe manufacturing was about double the real needs of the country. Seasonal employment meant that in clothing manufacture the worker was idle about 31 per cent of the year, in shoe manufacture 35 per cent, and in building trades 37 per cent. The above illustrations serve to indicate the enormous waste in economic organization, due mainly to the failure of a large proportion of managers to adopt modern science and technology in production.³

The technology of coördination of labor is fully as important as that of the division of labor and the standardization of processes. Machinery without scientific coördination realizes only a small fraction of potential output. Productive efficiency requires both machinery and coördination of parts and processes. The great desideratum is maximum output from a given expenditure of effort, and the only way to reach it is by application of the principles of engineering and scientific management to industry.

The Factors in Production.—The three basic factors in production are land, labor, and capital. Land includes all natural resources,—crops, minerals, water, air, lumber. Land supplies the raw materials of production, and affords the opportunity for the extractive industries to take the crude gifts of nature out of the earth and make them ready for the processes of manufacture and distribution. Land also serves an economic purpose in providing the location of industry.

Labor includes labor of brain as well as labor of hand. The machine technology has more and more separated manual and mental labor. The mental tasks are specialized, and performed by highly trained engineers, mechanics, and executives. The manual tasks require obedience to the orders and instructions worked out by management. A great part of the labor of the common man is a routine of motions prescribed by minds higher up. Mental labor is no less productive than manual. The two are mutually dependent.

³ Committee on Elimination of Waste, Federated American Engineering Societies, *Waste in Industry*.

Capital includes all articles of value which either are used for further production, as machinery, or are used for gradual consumption, as houses. The most important single form of capital, from the standpoint of physical production, is machinery. In the modern business world, capital is usually expressed in a sum of money. And this form of expression measures not merely tangible capital equipment, but also intangible property values, such as patents, good will, and special privilege.

The three basic factors in production may, then, be stated as follows: First, land, including natural resources and location; second, labor, including mental as well as manual effort; third, capital, including goods used for the production of further goods, durable articles of consumption, intangible as well as tangible property values, and the money expression of any or all of these factors.

There are three auxiliary factors in production: management, government, and money. Management faces a twofold task, to make goods and to make profit. Management coördinates land, labor, and capital into a going concern, for the production of economic goods and services. Management also coördinates costs and receipts, for the production of dividends and surplus. The physical process and the pecuniary process require coördination in the going business concern. This task of management is just as indispensable a form of labor as the task of the laborer who mines coal or tends machinery. Neither could go on without the other. Management has become highly specialized for the performance of its functions. More and more management is divorced from ownership. Managers work for a salary, and are employed by the owners of the business. The division of labor has reached the point where, in the general run of corporate enterprise, the most that the owners can do efficiently is to own and the most that the managers can do is to manage.

Government is not a burden on industry but is just as indispensable a factor in production as land, labor, or capital. Government is a form of labor. It renders economic services necessary to modern production. By protecting property rights, enforcing contracts, regulating competition, and rendering a wide variety of economic functions, government creates utilities, contributes to the making of physical products, and supports the making of money profits. Government is productive enterprise in the truest sense of the word "productive."

Money is not a superficial phenomenon which exists merely on the surface of production. It is a productive instrument, and just as indispensable to production as raw materials or labor. Indeed, all of the tangible goods of industry are dead and inert until they are fused into a going concern by the agency of money. The course of production is always regulated sharply by the movements of money prices, the maladjustments of money values, the money spread between cost and sales prices, and the amount of money purchasing power in the hands of consumers. We live in a *money economy*, where physical production goes on only under sufferance of the money powers higher up. All business is animated by the desire to make money profit. Physical pro-

duction is wholly subordinate to profit making in the mind of business. The money economy controls, guides, and dominates the production economy.

The three auxiliary factors in production may be summarized as follows: First, management, which coördinates both the physical factors and the pecuniary factors, which is a highly specialized form of mental labor, and which is largely divorced from ownership; second, government, which is not a deadweight burden, but is a productive agent, indispensable to the furtherance of business enterprise; third, money, which controls the kind and amount of production, and animates the business system of private profit.

The Entrepreneur.—Some one has to take the initiative in business enterprise. Some party has to hire the labor, procure the capital, provide the raw material, sell the product, disburse the expenditures, and determine the profit or loss. Whoever assumes this initiative is the *entrepreneur*, or enterpriser, in business. He is often referred to as the capitalist, the captain of industry, the employer, the business man. Whatever his title, the contribution which he makes to industry is definite. He promotes, organizes, and governs the enterprise. He takes the initiative, the responsibility, and the risk.

In some enterprises, the entrepreneur is both owner and manager. This is particularly true of those enterprises which have not yet been brought under the régime of corporate ownership. The single owner-manager concentrates in his own hands the risk and responsibility of the business.

The matter is more complex in those enterprises which have been taken over by the corporation. Managerial responsibilities are scattered between stockholders, bankers, boards of directors, consulting engineers and lawyers, and executive officials. Ownership is scattered among stockholders great and small. The real captain of industry in such a case may be the president, or some member of the board of directors, or a large stockholder, or an outside financier, or all of them taken together. The initiative, responsibility, and risk are greatly complicated, and the functions of the entrepreneur are highly scattered and highly specialized. But no matter how elusive the enterprising function may be in the modern corporation, nevertheless the fact remains that the genius for organizing and operating the concern exists somewhere. The function of the entrepreneur remains, however much it may be split up and obscured. The function is just as definite and just as indispensable as before. Some one has to take the initiative, to "go ahead," before the going concern comes into being. The complex entrepreneur of the corporation régime performs the same economic service in kind as the simple entrepreneur of the owner-manager type.

Large Scale Production.—The machine technology has affected the size of the typical business unit. In the pre-machine era, the typical business unit was a small family or other group of laborers using a few simple tools on a small amount of raw material. In the machine era,

the typical business unit is an aggregation of hundreds or thousands of laborers, using a mass of highly expensive machinery and equipment on a great volume of raw materials. Manufacture more perfectly reflects this tendency toward expansion than any other branch of production. There the factory is the typical creation of the machine process. Factory production is for the most part large scale production.

The degree to which large scale production prevails varies greatly from industry to industry, from plant to plant in the same industry, and from country to country. In the United States, anthracite coal mining is highly concentrated, but bituminous coal mining is highly scattered among relatively small companies. Manufacture of iron and steel is an extreme of large scale production, but manufacture of textiles is relatively small scale production. Retail stores retain in large measure smallness of size, but even retailing is succumbing more and more to the large scale activities of the chain store, the department store, and the mail order house. Even in an industry which is marked by large scale production, there appear many independents which operate successfully on a small scale. The independent small manufacturer is no rarity, but is numbered by the hundreds of thousands. Differences in size between plants in the same branch of production are everywhere to be found. Finally differences between countries are often pronounced. The United States has upwards of 30,000 separate banks, whereas Canada has 17 large banks with thousands of branches. Banking in England has undergone tremendous consolidation, but banking in the United States has resisted a proportionate concentration. German consolidation of coal, iron, and railroad industries has gone to an extreme probably unmatched by any other country.

However widely industries may differ in large scale production, one fact is definite, that industry in general is operated in much larger units under the machine régime than under any previous régime. The machine technology demands bigness in the unit of production. The main reasons for large scale production may be summarized as follows:

1. It makes possible an economical utilization of expensive machinery and other capital equipment. The single family or the small producing group cannot afford to purchase costly equipment which would of necessity be idle and unproductive a great part of the time.

2. It makes possible a full utilization of the division of labor. The large concern can hire experts in each department, and can secure the best brains and the best ability for each important task. It can divide the tasks of common labor into narrowest units, and so make possible the use of automatic machinery and standardization of processes.

3. It can economize by the utilization of by-products. The prevention of waste of any part of the product is more effective where the by-product can be dealt with in large quantities.

4. It can take greater advantage of applied science, laboratory research, and experimentation.

5. It can develop the market to better advantage, through buying and selling in quantities, through savings in advertising and financing, through intensive sales effort.⁴

Economic Significance of Power.—In 1924, the energy contributed to production by firewood, work animals, water power, coal, oil, and natural gas amounted to 25,000 trillion British thermal units. Of this total, coal supplied 65 per cent, oil and gas 22 per cent, wood 6 per cent, water 4 per cent, and work animals 3 per cent. Water and coal in turn give rise to electrical power, which in 1924 amounted to more than 55 per cent of the total power used by manufacture. The tendency has been toward an increase in the proportion of electrical energy and of oil energy. Particularly, the electrification of industry has been of paramount importance, and promises to become steadily more prevalent in the future. The age of electricity emerges from the age of coal.

The technology of electrification involves erecting of large generating and central power stations, near to coal mines or waterfalls, and mass transmission of the energy, under high voltages and over great distances. Such distribution of energy makes possible a decentralization of overcongested manufacturing areas. It cheapens the use of energy and lowers the cost of production. It economizes our natural resources. It alters materially many of the most important features of the present technology of production.

Mechanical energy is of the utmost economic importance because the availability of such energy for the laborer greatly increases his output from a given expenditure of effort. The history of increased production per worker is closely interwoven with the history of increased horsepower per worker. In general, the efficiency of the worker is in direct proportion to the amount of mechanical energy at his disposal. The growth of mechanical energy in industrial use is shown by the following table:

PRIMARY HORSEPOWER USED IN MANUFACTURES IN THE UNITED STATES

Year	Total Horsepower	Horsepower per Wage Earner
1899	10,097,893	2.1
1909	18,675,376	2.8
1919	29,504,792	3.2
1923	33,749,429	4.3

The most significant aspect of this data is that the horsepower per worker has more than doubled during a quarter of a century. The worker, although laboring fewer hours per day, nevertheless turns out

⁴ For further discussion of the advantages and disadvantages of combination, see the chapter dealing with Management.

a greater product. Not only is the output greater, but the technique of the labor itself is materially altered. The laborer has come more and more to confine his efforts to guiding and controlling the mechanical energy employed. His effort is directed to pushing a button, setting a gauge, moving a switch. As observed by an engineering authority, "The modern way to use the energy of a man is to employ it in a way similar to the little detonator of the big explosive—the little charge sets off the big one and does an amount of work far in excess of its own capacity."⁵

Science, Research, Invention.—Improvements in modern technology are almost wholly due to specialized scientists, inventors, engineers and statisticians. The technicians are always in quest of something new and better. In the field of applied science, the status quo is not the ideal. Rather, the ideal is discovery, development, progress.

For the most part, invention by some individual in his small private workshop is a thing of the past. The private struggle for invention associated with the names of Watt, Cartwright, and other pioneers, has been superseded by large scale research, in specially equipped laboratories, financed by some group or organization.

In the modern laboratory, invention in the popular sense of the word is unknown. Invention viewed as a sudden inspiration to create an utterly new mechanism is purely a popular myth. Invention is not so heroic and dramatic as that. In fact, the research specialists of today practically eliminate the word "invention" from their minds. They think only of "improvement" in a given machine or process. Scientists and mechanics are attempting to discover ways and means of improving old machines and old processes. A single part to a locomotive may be the culmination of 10,000 prior improvements in that particular part. The object of research is to carry the improvements one step further. The sensational invention of a wholly new device is rare indeed; the development and improvement of a device already in use is a commonplace industrial happening. The trail of technological progress is marked by improvements and developments in a gradual, accumulative forward movement.

Four main types of research agencies are in operation: university, privately endowed, governmental, and corporation. Some duplication occurs in any such classification, but fundamentally these four classes are distinct.

(a) *University Research.* The universities and technical schools contribute to industrial research in three major ways: first, by educating students who will carry on research in industrial and governmental laboratories; second, by carrying on specific researches in the university laboratories at the request of industries which feel the need of such investigations; third, by the scientific studies made by the faculty staff for the advancement of scientific knowledge.

⁵ Thomas T. Read, Federal Bureau of Mines, Address at Georgetown University, 1924.

In regard to the first of these contributions, the schools of higher education act as feeders to the research personnel of all other laboratories. In all industrial laboratories, a large percentage of the workers are graduates of universities or technical schools, and in many such laboratories a strict prerequisite for employment is a degree from an appropriate school of higher education. The Schenectady laboratories of the General Electric Company employed in 1924 about 90 college graduates and about 25 men having doctor's degrees. The Department of Development and Research of the Bell Telephone system employed more than 1,000 college graduates, picked from more than 100 American colleges. The Bureau of Standards in Washington, D. C., employed more than 400 men holding college degrees in science, technology, and engineering. The training in scientific method and the instruction in scientific principles which the universities give are invaluable to the staffs of scientists employed in all non-university laboratories.

In regard to the second university contribution, corporations often employ the services of a professor, either part time or whole time, for research in the university laboratory or in a laboratory provided by the corporation itself. A more common method of direct use of university facilities by corporations is the establishment of fellowships for special graduate research in subjects of industrial interest. Even corporations which have laboratories of their own find it advantageous to turn over certain problems to the universities and technical schools. The Du Pont Company of Delaware in 1923 maintained, in addition to its own laboratories, research fellowships at 16 different schools. Many small enterprises which do not feel able to finance independent laboratories, with their costly apparatus and highly paid scientists, are able to finance technical fellowships at the universities. The university supplies the overhead of laboratory organization and equipment, and the industry bears the direct labor and material cost of investigation. In 1923, it was estimated that over 580 scholarships and fellowships for advanced research were in operation. These ranged in value from \$100 to \$2,000 annually.

In regard to the third form of university research, the faculty of the university carry on scientific studies for the advancement of knowledge, for the extension of pure science, and for the application of science to industry and commerce. Although the universities have made many notable practical achievements in applied science, nevertheless their most distinctive and important achievements lie in the broader field of pure science. The professor in a university laboratory is freed from the atmosphere of commercialism and the demand for immediate cash results. He can pursue knowledge for knowledge's sake. He can make his main objective the enlargement of the boundaries of truth. This environment has proved to be the proper stimulus for the more profound investigations of science. The researches of Faraday in electric induction and of Thomson in the electron and the vacuum tube yielded the broad scientific principles which underlie the electrical

appliances developed in manufacturing and commercial laboratories. Studies in the laws of gravity, atomic structure, the behavior of rays of light, or the properties of gases, have been made by university professors. At first thought, the discovery of detached principles and laws in these fields may appear devoid of all practical value. But it is a commonplace among scientists that all practical inventions and discoveries are but an outgrowth of the fundamental laws of pure science. The universities have furnished the basic principles at the source of the leading processes in modern industry. The commercial laboratories and the practical inventors depend upon the professors of science for the basic advances in scientific knowledge. After pure science has opened the way, applied science enters the field.

The main handicap in university experiment is the lack of adequate funds. University money must be utilized primarily for instruction purposes and only secondarily for original experimentation. This drawback makes it undesirable for the universities to undertake experiments which require a heavy outlay for apparatus and equipment, unless they are specially financed for the particular purpose by corporations directly interested. The universities excel in research which requires the time and effort of painstaking labor. Graduate students receive their chief compensation in the form of training and scholastic degrees. Professors pursue experimentation in their free time, often with the desire to extend their knowledge of the science or to create prestige by their discoveries. The universities are specially adapted to research depending mainly upon the labor factor, but not to research depending upon the capital factor.

The research for which universities are chiefly distinguished is usually affected with a broad public interest. Universities for the most part limit their facilities to lines of study which are likely to be of concern to the general community. Research which is designed merely for profit making is commonly undertaken by non-university laboratories. The public aspect of university research is important in disposing of the question of patent rights. The principles of pure science are given freely to the world. The basic discoveries are not patented or copyrighted. On the other hand, discoveries of applied science are often patented by the individual professor. This privilege is denied to the individual in some universities, on the grounds that, since the financing of the research is carried on by the university, the results belong to the university, and should be controlled in ways to produce the greatest benefit to the university and to the public.⁶ Columbia University, while not compelling the individual inventor or scientist to surrender his patent rights, maintains an Administrative Board of University Patents to accept the voluntary assignment of such rights. The purpose is to protect the discoverer from encroachments upon his rights, to ensure that the public be served under the best possible conditions, and to enable the university to share in the benefits for which

⁶ The University of Illinois is an example of this type of university.

it was in part responsible.⁷ In any case, the significant feature of patent policy in university research is the recognition of the interests of the public. Public benefit comes first, commercialism comes last.

(b) *Privately Endowed Research.* The Carnegie Institute, with an endowment of \$22,000,000, conducts research in ten special lines of pure science, including terrestrial magnetism, geophysics, solar physics, botany, nutrition, and economics. The Rockefeller Institute conducts intensive research in the field of medicine. The Smithsonian Institute and the Russell Sage Foundation conduct important scientific studies in the physical and social sciences. The Mellon Institute, maintained under the supervision of the University of Pittsburgh, provides facilities of research suited to the needs of individual trades or industries. The industry pays the direct labor cost of the research by maintaining a fellowship for the services of a specially employed investigator. These fellowships cost upwards of \$5,000 per annum for each investigator required. The Institute furnishes laboratory, library, consultative facilities, the use of its permanent research equipment, and general direction and supervision of the work. Such experimentation is more effective, and more economical of time and money, than studies which the manufacturer might undertake to carry on independently in a small and poorly equipped laboratory of his own. Privately endowed research, whether devoted to pure science or applied science, stresses investigations which are of marked public importance. Research for mercenary purposes receives no attention. The whole effort is concentrated upon studies affected with a genuine social interest.

(c) *Government Research.* The United States Bureau of Standards is an important government laboratory maintained by the Department of Commerce. This Bureau conducts tests of materials and original research for other departments of the national government and for the state governments. It also carries on research directly as the agent of corporations and trade associations. The industries in such cases pay the expense of a research associate, who is usually some competent graduate student in physics, chemistry, or other science. The Bureau of Standards supplies the overhead of laboratory facilities and consultation with expert scientists. The research covers both pure and applied science. Investigation is not undertaken unless the results are likely to be of benefit to the public. The Bureau reserves the right of publication of all findings, and in general such discoveries as are made are not patented but are given out for the general good of industry and the public.

The United States Bureau of Mines, maintained by the Department of the Interior, is likewise devoted both to research for other government departments and to research for industry itself. The investigations cover accident prevention, sanitation, and working conditions in mining, and technical problems in pure and applied science affecting the production, conservation, and utilization of minerals. The investigations

⁷ Annual report of President N. M. Butler, Columbia University, 1925, pp. 34-35.

in all cases have a definite public interest, and the results are disbursed freely for the benefit of the public. The Bureau of Fisheries attempts to increase the yield of fish by the application of biological science. The Forest Products Laboratory, maintained by the national government, with the coöperation of the University of Wisconsin, studies methods of conservation, manufacture, and utilization of by-products of the forests. The Geological Survey provides scientific information on the extent, nature, and composition of the natural resources of the United States and of the rest of the world. The Department of Agriculture has a very elaborate research organization in Washington, and in addition coöperates with the States in the maintenance of agricultural experiment stations.⁸ The individual farmer has almost no facilities for scientific research. Consequently, the initiative has had to come primarily from the government. Thousands of studies in plant and animal breeding, plant and animal diseases, treatment of the soil, and farming methods, have made invaluable contributions to the technique of modern farming. These major government agencies of research reflect an alert and intelligent initiative on the part of public officials. Whatever may be said of the deadening effect of politics in other lines of business, certainly the accusation cannot be made that political institutions have retarded scientific progress. The governments have more often stimulated and educated industry to an interest in the possibilities of scientific research. The initiative and the inspiration of the work has come primarily from the government. Without the spur of private profit, without the drive of individual initiative, without the incentive of patent rights, scientists in the employ of the government have in countless ways forwarded the technology of modern production.

A salient characteristic of government research is its provision of laboratory facilities for industries which otherwise could not afford the expense of research. The government maintains a permanent equipment of laboratory materials which can be adapted to the needs of special research studies. The individual enterprise could not afford the original investment or the overhead cost of such equipment.

The National Research Council is a quasi-public organization which endeavors to stimulate research in science, to survey and collate scientific facilities, and to secure the coöperation of all scientific agencies and interests. In 1920, the membership of the Council consisted of representatives of 70 scientific and technical societies and government departments. The council is financed by private contributions and endowments and administered by private authorities, but works in intimate coöperation with all government departments interested in scientific work. The Council does not conduct research itself, but promotes and encourages the research of all other agencies by conferences, consultation, and coöperation.

⁸ The Bureau of Agricultural Economics and the Bureau of Labor Statistics should be mentioned as government agencies performing valuable economic and statistical research.

Other countries have furthered the movement of scientific research in like manner, by both direct appropriation of expenses for laboratories and by quasi-public stimulation and education of other research agencies. England, France, Japan, and Germany contribute to research in both these ways. Germany has carried government research to a much higher degree of effectiveness than most other countries. The Reichsanstalt provided a great public laboratory, financed by the government. The Kaiser Wilhelm Gesellschaft was a research organization endowed by the commercial interests and operated in close alliance with the departments of the government. Probably the most important method of promoting research was government aid and supervision of the technical schools and universities. The government made direct appropriations to the technical schools, and encouraged business associations to contribute generously to the same end. The institutions of higher education in Germany busied themselves in countless ways with scientific studies affecting every side of industrial technology. Due to this emphasis upon science, Germany achieved an especially high place in such industries as chemicals, dyes, and electrical supplies. The schools sent out each year thousands of trained scientists who in turn furnished the personnel for the private laboratories of corporations and trade associations. The professors in the universities coöperated with the government and with industry to advance in every possible way the application of science to industrial technology. The alliance between the government, the university, and the corporation was complete, and the results were evident in the scientific proficiency of German production.

(d) *Corporation Research.* Research at the initiative of private corporations may be organized in four main ways:

First, corporations may employ research experts in laboratories of the government or of the universities. This method of financing and supporting research has been discussed in connection with university and government research, and need not be treated again at this point.

Second, an individual corporation may establish a research laboratory as a part of its own business organization. In 1924, more than 500 different concerns maintained laboratories of this type. In size, the laboratories range all the way from dingy one-room structures to large buildings costing millions of dollars and used exclusively for research purposes.

Third, a group of corporations may establish a coöperative laboratory and share the expense of maintenance. In 1924, approximately 40 trade associations conducted such laboratories. Small concerns find coöperative research specially helpful, since the sharing of expenses reduces the burden upon each individual company. Such research is not suited to subjects involving trade secrets, because the results of the research become the common property of all the members. The appropriate subjects for investigation are only those which are not affected with the jealousies of competition.

Fourth, corporations may refer their research problems to privately

incorporated laboratories, which sell their services outright to manufacturers. In 1924, about 86 such laboratories were in operation in the United States. These private laboratories render expert opinions and consultant advice for a professional fee. Also, they conduct original investigations for certain fixed scales of charges.

The research work undertaken by corporate forms of organization falls into three main classifications:

First, research may be purely analytical. It is devoted to routine testing of raw materials and finished products to insure certain standards of quality. It also sets up standards of testing, to the end that analytical methods may be uniform and consistent. This type of work, for the most part, calls for relatively slight originality and creative ability.

Second, research may be developmental. In that case, it is devoted to the discovery of possible new products, to the improvement of old products, to the elimination of manufacturing troubles, and to testing the commercial value of new industrial propositions submitted to the corporation. This type of work calls for the most brilliant creative ability. The great original discoveries and inventions are made by scientists and inventors of this character. New processes, new machinery, new ideas, emanate chiefly from this small group of research experts. The scope of their studies is somewhat limited by the necessity for getting practical results. Their interest is mainly in applied science. They of course depend upon the workers in pure science for much of their information, but such contributions from pure science are merely the starting point for the workers along strictly practical lines. Each investigation is circumscribed with the all important question: Will it pay? If it will not enable the corporation to make a larger profit, it will be immediately stopped. The pressure is strongly for discoveries and inventions which can be turned into dollars and cents.

Third, research may be purely scientific. For the most part, studies in pure science are pursued in the university environment or in government laboratories. But some of the larger corporation laboratories find it advantageous to engage directly in research in pure science on their own account. A substantial amount of truly fundamental research in pure science is carried on in corporation laboratories, but in general pure science is decidedly subordinate to applied science in their activities. Abstract laws are of secondary interest in comparison with concrete discoveries and practical results which have an immediate dollars and cents value.

The inventions and discoveries made in these various types of laboratories are seldom the fruit of the effort of any one man. They are the fruit of collective effort. Team work, conference, suggestion, coöperation between a group of scientific experts, are the methods of arriving at results. Each improvement or development is a joint product, and cannot be traced exclusively to the genius of any individual. It is true that certain scientists display greater ability to take advantage of such group coöperation than others, but even the most distinguished indi-

vidual modern scientists owe to their fellow workers much credit for coöperation. Individualistic achievement is rare and difficult, coöperative achievement is the common thing. The reaction of mind on mind is of vital importance.

The coöperators are commonly paid a salary for their work. Promotion is based upon effectiveness in getting results from investigation. The corporation finances the undertaking, and provides the capital equipment necessary for laboratory facilities. The research expert does not ordinarily patent his development or improvement. The patent is taken out in the name of the corporation, and the profits to be derived from patent monopoly enrich the corporation rather than the scientist.⁹

The Incentives to Invention and Discovery.—The modern scientist or inventor usually works as a salaried employee. His financial incentive is simply to earn his salary, or perhaps to win a promotion and thereafter to receive a higher salary. If he is in the employ of a corporation, the corporation will usually take out the patents in its own name and for its own benefit. If he is in the employ of the government, no private patent will be taken out, but the discovery will be reported for the public good. If he is in the employ of a university, he may or may not be allowed the privilege of patenting his discoveries, according to the policy of the university concerned. In case he is in a position to take out a patent, he must face the probability of encroachments upon his rights. If he prosecutes such encroachments at law, he must face the fact that the corporation opposing him has endless legal resources for a long drawn out battle in the courts. The prospect of winning a fortune from patent rights is no longer a primary incentive to the inventor. The typical inventor works for some one else, and if he makes a discovery, the patent rights and royalties, if there are any, redound to the benefit of the employer, not the employee.

In addition to the financial incentive, there is the incentive of prestige in the profession. Great scientists become famous, and to no small extent, fame is its own reward. The inventor is not forgetful of the glory and renown which attaches to the names of great discoverers. The desire to achieve leadership, to be hailed as a benefactor of the race, to be recognized as an authority, is a powerful motive in all modern research.

Underlying the incentives of finance and fame, is the impetus of a purely scientific love of truth. The great minds of pure science have been animated by a spontaneous desire to extend the fields of knowledge. The inventor becomes interested in his task and gives up his entire life to its completion. The scientist may work on a single problem for decade after decade for the love of the work. Intellectual curiosity, absorption in a difficult problem, constructive imagination,—these are characteristics of the motives everywhere apparent in modern research.

Moreover, the scientist is public spirited in his studies. He is not

⁹ Valuable discussion of research is contained in an unpublished monograph by A. C. Gubitz, *The Inventor's Contribution to Industry*.

wanting in a sense of service to humanity. Part of his incentive is to ameliorate human suffering, improve the life of the community, and advance the social good.

The incentives are mixed and varied. They combine in different proportions in different men. One thing is significant, however, that the profit motive is not the paramount factor in most modern invention and research. That is to say, it is not the motive in the mind of the scientist. It is, however, likely to be the motive of the corporation sponsoring the research. The corporation decides to employ scientists and to equip laboratories because thereby it hopes to enlarge its possibilities of profits. The profit motive is doubtless uppermost in the minds of the business men who finance research, but it appears to be only one of several major motives in the minds of the inventors and scientists themselves. They have a salary motive, but scarcely a profit motive.

Business Research.—Scientific investigation is not confined to the physical sciences and the mechanical arts. It extends to the field of management, both within the plant and over the economic system as an entirety.

Science applied to internal management leads to industrial psychology, personnel administration, human engineering. It also leads to efficiency methods, to industrial engineering, and to scientific management. The detailed considerations in these applications of science are discussed in later chapters dealing with management and with labor. The important fact to be noted at this point is that scientific methods and principles have been proved applicable to this type of problem. Progress in managerial technology within the plant comes, not from rule of thumb methods, but from modern methods of scientific analysis.

Science applied to external economic problems leads to business statistics, analysis of the business cycle, knowledge of production, distribution, and consumption. It leads to fact finding in fields that have hitherto remained unexplored and obscure. It supplies data of value in articulating the various parts of the business structure. The relations between factories, railroads, warehouses, farms, mines, and stores must be correlated. The immense complexities which are involved require refined methods of mathematical and statistical analysis. Detailed consideration of these types of research is given in later chapters dealing with the business cycle. Bureaus of business research have become a common feature of schools of business administration. Similar bureaus have in many cases been created by private foundations and endowments. Corporations maintain private statistical departments, or cooperate to maintain collectively a statistical bureau for their common use. Various departments of the government supply statistical analysis and statistical data. The application of science to general business problems is a highly important development of modern economic technique.

The Significance of Scientific Research for Production Theory.—The work of the scientist and the inventor is chiefly significant in the

theory of production because it tends to increase the product from a given expenditure of effort. Research results in greater output from a given quantity of labor. It leads to an economy of human energy, by multiplying the economic effectiveness of each unit of human energy. *Every improvement in technology must justify its existence, from the production standpoint, by this acid test: Does it augment the product from a given expenditure of effort?*

By a variety of methods, the scientific technique of production measures up to the productive test set for it. Science in industry increases the division of labor and intensifies specialization. It leads to standardization, automatic methods, and quantity production. It increases the substitution of non-human energy for that of the human hand and brain. It conserves the resources of nature by prevention of waste and utilization of by-products. It improves the effectiveness of the machine and of the machine technology. And it leads to a repropor-tioning of the basic factors in production. Scientific technique increases the relative importance of capital and decreases the relative importance of labor in production. It substitutes mechanism for man power, capital for labor. The value added by manufacture is more and more attributable to the capital factor. The utilities created are more and more due to the agency of the machine and the scientific process. By these various and sundry methods, scientific technology tends to meet the productive test, in that it increases the output from a given expenditure of effort.

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CHAPTER VI

PRINCIPLES OF CONSUMPTION

The Meaning of Consumption.—Consumption deals with the satisfaction of wants. Economics views the consumer as a bundle of wants. His wants for food, for clothing, for recreation, and for countless other things require gratification. Take away man's wants and you take away the mainsprings of economic activity. The whole mechanism lies dead and inert. But stimulate and satisfy man's wants, and you galvanize the economic mechanism into action. The forces which make the economic wheels go round are the wants of consumers. Hence economics, in dealing with consumption, concentrates its analysis upon the nature of wants.

What happens to the individual when wants are satisfied? What goes on in human nature when consumption takes place? The answer leads into the domain of related sciences, psychology, biology, philosophy. An act of consumption involves stimulus and response. It involves activity of the sensory organs in reception of stimuli. It involves activity of the nerve system in transmitting stimuli. It involves activity of muscular and glandular organs in responding to stimuli. The reaction of human organism to environment involves the functioning of the physical mechanism of the individual. The individual is a set of reaction systems. All that happens to the individual happens by the pathway of stimulus and response, by the pathway of reaction.

The consumption of food is not merely the act of destroying the material thing. It is an act of nutrition or malnutrition, in which the functioning of the digestive system, the nervous system, the entire physical organism is involved. Consumption is not merely what the individual does with food; it is what food does to the individual. The consequence of consumption is the building of health, of energy, of strength. The want for food, then, goes beyond the mere appetite of hunger; it extends to the want for the healthy functioning of the individual, to the want for life itself.

This physical and mechanistic view of the nature of want satisfaction may be supplemented by the mental or spiritual view of the same phenomenon. In coördination with the mechanism of sense organs, nerves, and muscles, there goes on a conscious process of desires, wishes, and ambitions. Consciousness and the whole subjective life are to be reckoned with. If we take the purpose of life to be happiness, then consumption, broadly speaking, is the satisfaction of all those wants by means of which the individual seeks happiness. If we take the purpose

of life to be service, then consumption, broadly speaking, is the satisfaction of all those wants by means of which the individual seeks to render service. Whatever we take the purpose of life to be, consumption is the attempt to achieve that purpose.

The Measurement of Consumption.—Production has already been defined as the creation of utilities. Consumption involves the using up of the utilities so created. Consumption destroys utilities, but does not destroy matter or energy. The shapes and forms of matter are changed, and the kinds of energy are changed, but there is neither more nor less matter and energy after consumption than before. The only thing destroyed in the process of consumption is economic utility. This view of the consumption process is especially useful in formulating a theory of value. Its significance is discussed in a later chapter dealing with the problem of value.

Important though the concept of economic utility is for such a purpose, it nevertheless is inadequate as a basis for a full analysis of consumption. This inadequacy of the utility concept is chiefly apparent whenever we attempt to measure the phenomenon of consumption. An utility is purely an abstraction. We can postulate it and use it as a logical tool, but we cannot measure it. There is no unit of measurement which applies to the abstract concept.

However, one thing the economist can do, that is, measure the amount of goods which embody the utilities. He can ascertain the number of bushels of wheat, the number of pounds of sugar, the number of yards of cloth which a community uses. He can derive from these physical measurements of the things consumed an estimate of the volume of consumption.

A second method of measurement is open to the economist. He can ascertain the amount of money for which economic goods or economic utilities are exchangeable. He can take the price measure of consumption. The number of dollars the consumer spends for each item on his budget affords a basis for a pecuniary estimate of the volume of consumption.

Whether the physical or the money measurement of consumption be taken, the economist must also take into account the ultimate factor of consumers' welfare. Unless the volume of goods and the volume of money spent results in a proper volume of human welfare, consumption has fallen short of its goal. Physical things and dollars and cents are of no avail unless they lead to the well-being of the community. The goods and the money are not the end of consumption, for the end is welfare. At the same time that we measure the things being consumed, we must take into account the effect for good or ill upon the consumer.

What is Consumed?—The national income is spent for consumption. To ascertain what are the things consumed, it is necessary to find how the national income is spent. What proportion goes for food, what proportion for clothing, what proportion for shelter, what propor-

tion for the other main classes of consumption. The following table offers approximate estimates of the relative importance of each class of goods in the total consumption.¹

Articles Entering into Consumption	Approximate Percentage Each Class of Articles is of Total National Consumption
Savings	12 to 20%
Taxes	8 to 12 "
Food	25 to 30 "
Clothing	12 to 15 "
Shelter	10 to 12 "
Furniture and furnishings	4 to 5 "
Fuel and light	3 to 4 "
Tobacco	2 to 3 "
Ice cream, beverages	1 to 2 "
Candy and chewing gum	1 to 2 "
Medical care	2 to 3 "
Theaters, clubs, etc.	1 to 2 "
Miscellaneous	6 to 8 "

Savings and taxes combined use up about one-quarter of the national income. Another quarter goes for food, which is the largest single item in the entire list. A third quarter goes for clothing and shelter combined. A final quarter goes for furniture, fuel, light, recreation, amusements, comforts, luxuries, and miscellaneous items.

The above data refer to the division of the national income viewed as a grand total. As a general average, such information serves a useful purpose, but it must not be assumed that the general average holds true for each class of income receivers in the nation. For instance, the expenditure of family income among wage earners varies widely according to the size of the wage income. The following table shows the per cent of expenditures among various grades of wage earners, with respect to the main items in consumption. The table was prepared by the United States Bureau of Labor Statistics, and represents the experience of more than 12,000 families. The period covered was 1918 and 1919.²

¹ The estimates here made are at best only approximations. In a rough and general way, they indicate the forms of consumption in the United States, but they are not to be taken as exact measurements. Data for the table have been derived from a wide variety of sources. Part of the data are from other chapters of this volume. Part are from the United States Census. Special reference should be made to a study by Paul H. Nystrom, in the *Harvard Business Review*, January, 1925.

² United States Bureau of Labor Statistics, Bulletin No. 357, *Cost of Living in the United States*, 1924, p. 5.

*Production and Consumption*PER CENT OF EXPENDITURES FOR THE PRINCIPAL GROUPS OF
ITEMS OF COST OF LIVING

Income Group	Number of Families	Average Yearly Expenses per Family for:					
		Food	Clothing	Rent	Fuel and Light	Furniture, Furnishings	Miscellaneous
Under \$900	2.7	44.1	13.2	14.5	6.8	3.6	17.8
\$900 and under \$1,200	20.0	42.4	14.5	13.9	6.0	4.4	18.7
\$1,200 and under \$1,500	32.7	39.6	15.9	13.8	5.6	4.8	20.2
\$1,500 and under \$1,800	22.6	37.2	16.7	13.5	5.2	5.5	21.8
\$1,800 and under \$2,100	13.2	35.7	17.5	13.2	5.0	5.5	23.0
\$2,100 and under \$2,500	5.8	34.6	18.7	12.1	4.5	5.7	24.3
\$2,500 and over	2.9	34.9	20.4	10.6	4.1	5.4	24.7
All incomes	100.0	38.2	16.6	13.0	5.2	5.1	21.3

The following table shows expenditures among the more well-to-do groups and among the rich. The estimates are based upon a small number of family groups, and hence are not fully reliable. They do, however, suggest the trend of expenditures in a substantially accurate manner.

AN ESTIMATE OF THE PERCENTAGES OF TOTAL EXPENDITURES FOR CONSUMPTION
GOODS MADE FOR THE PURPOSES SPECIFIED *

Total Expenditures for Consumption Goods Annually	Food for Family, Guests, Servants	Housing, Including Rent of Homes Owned	Fuel and Light	Automobiles, Yachts, and Maintenance	Wages of Servants	Clothing	Miscellaneous, Including House Furnishings
\$ 5,000	27.2	18.0	3.3	9.2	4.5	14.3	23.5
15,000	15.8	18.6	3.0	10.0	11.5	10.3	30.8
25,000	12.0	19.2	2.6	10.0	12.7	8.7	34.8
35,000	9.1	19.8	2.2	10.0	13.1	7.6	38.2
50,000	6.1	20.7	1.8	10.0	13.7	6.4	41.3

* National Bureau of Economic Research, *Income in the United States*, Volume II, p. 26.

The percentage of expenditure for each purpose varies with respect to the size of the income. For the lowest incomes, more than 44 per cent of the income is spent for food, but for the highest incomes, only 6 per cent for that purpose. As the incomes increase, more proportionately

is spent on education, comforts, luxuries, and various items included under the heading, miscellaneous. The percentage spent for clothing increases until incomes pass the \$2,500 mark, and thereafter decreases. On the other hand, the percentage spent for rent and housing slightly decreases until incomes pass the \$2,500 mark, and thereafter slightly increases. The percentage spent for fuel and light steadily decreases throughout the rising income groups. The above tables bring out emphatically the fact that expenditures vary materially with respect to the size of the income. The proportions between the different articles of consumption rise and fall as incomes rise and fall. What shall be consumed varies according to the amount of the family income. What wants shall be satisfied depends upon how much income the consumer has to spend.³

A Factual Analysis of Food Consumption.—A theory of consumption cannot be constructed to apply to a vacuum. It must be constructed to apply to the living conditions of a given time and place. Hypothetical abstractions are not so important as realistic generalizations. A theory of consumption must rest upon the known and pertinent facts of consumption. We may, therefore, undertake a description of the factual basis of consumption in the modern period, with special reference to the United States. Inasmuch as food is the most important single item in the average family budget, chief attention will be given to consumption of food.

The satisfaction of food wants involves both the satisfaction of appetite or taste, and the satisfaction of the requirements for nutrition. Fancy foods catering to fastidious taste may be much inferior in nutritive value to plain foods suited to plain taste. The foundation for a nation's want for food is the nutritive requirements of the people. After these are satisfied, people with higher incomes can elaborate and refine their diet to extremes. For the most part, the higher refinements of diet merely please the sense of taste, and do not add at all to the supply of nutrition.

The satisfaction of the want for nutrition involves the provision of proteins, fats, carbohydrates, mineral salts, and vitamins. A proper balancing of these factors is essential to health and growth. There is not space in this treatment to analyze the significance of each separate factor. However, it is desirable to analyze food factors from the standpoint of their capacity to produce energy for the human motor. Food

³ Ernst Engel, from budget studies of the Belgian Statistical Commission in 1852 and 1854, formulated four "laws of consumption as follows: As the income of a family increases, (a) a smaller percentage is spent for food, (b) a greater percentage is spent for education, recreation, luxuries, etc., (c) approximately the same percentage for clothing, (d) and approximately the same percentage for rent, fuel and light. The first two laws of Engel are confirmed by the budget studies of the United States Bureau of Labor Statistics, but the last two laws are modified considerably. Clothing and housing, instead of remaining constant percentages of family budgets, show changing percentages depending upon the size of the family income.

elements can be reduced to fuel values by expressing them in terms of calories, or heat units.⁴ A man of average weight (154 lbs.) at moderately hard muscular work requires from 3,000 to 3,200 calories per day. About 10 per cent of the calorie value of food is wasted in preparation, so that a gross amount of 3,500 calories purchased represents approximately 3,000 to 3,200 calories actually consumed. This amount of calorie content is the requirement of the individual for energy to carry on his daily activities and work. This is his want as a consumer for the energy-giving qualities of food.

The relative importance of various articles of food for purposes of energy may be determined by finding their relative calorie content. The four most important foods prove to be wheat, pork, dairy products, and sugar. These foods supply more than 70 per cent of the total calorie consumption of the nation. The following table shows the relative nutritive value, in terms of calories, of the main foods consumed in the United States:

CONSUMPTION OF HUMAN FOODS IN TERMS OF CALORIFIC VALUE IN THE UNITED STATES *

(Average for the 6 years, 1911-12 to 1916-17)

Commodity	Percentage of Total Calorie Consumption	Cumulated Per Cent
Wheat	25.90	25.90
Pork	15.74	41.64
Dairy products	15.26	56.90
Sugars	13.24	70.14
Corn	7.03	77.17
Beef	5.30	82.47
Oils	3.62	86.09
Potatoes	3.36	89.45
Other vegetables	1.13	92.60
Poultry and eggs	2.02	94.47
Apples	1.08	95.55
Mutton	0.61	96.16
Fish	0.41	96.57
All other	5.30	100.03

* Raymond Pearl, *Studies in Human Biology*, p. 407.

The nine leading foods supply more than 91 per cent of the total calorie value of foods in the United States. Vegetables are obviously a very minor part of the total consumption. Whatever hopes may have been entertained for making the American people a nation of vegetarians

⁴ Raymond Pearl states, "This is the most scientific, and as soon as one becomes accustomed to it, by far the most useful way of thinking about food consumption." *Studies in Human Biology*, p. 386.

have far from materialized. The cereals and the meats are the stock diet of the people.

Foods differ widely in their cost per unit of energy value. The important question in this connection is: Which foods supply calories of energy, or other food elements, at the lowest cost. A study of food in New York City restaurants showed that the cost of 2,500 calories of food ranged from 25 cents to 14 dollars. The following table presents comparative calorie costs for various foods:⁵

Commodity	Relative Cost of 100 Calories (bread taken as base index of 100)
Wheat	53
Dairy products	245
Pork	366
Sugar	68
Corn	51
Beef	681
Potatoes	149
Fish	800

Grains and sugars are relatively cheap in respect to calorie content; meats and many miscellaneous foods are relatively dear. Foods, however, are often bought because of the canons of custom or the whims of taste, rather than because of nutritive value. What is of primary importance to the individual's health and strength is nutrition, but this is likely to be purely incidental in determining his choice of foods. Consequently, in the midst of prosperity, a large number of people suffer from undernutrition or malnutrition. Unwise spending, or underspending of money, reacts upon the vigor and vitality of the population and upon the productivity of its labor force.

The per capita consumption of various foods varies sharply from country to country. The Chinaman's rice, the Eskimo's blubber, the Irishman's potato, the Scotchman's oats, represent distinctive national foods. In comparison with other countries, the United States consumes huge quantities of sugar and meat. Certain national variations in meat consumption are as follows:

PER CAPITA CONSUMPTION OF MEAT IN DIFFERENT COUNTRIES

Country	Per Capita Annually, in Pounds
Italy	23
France	74
England	105
Germany	115
United States	160

⁵ Henry Harap, *The Education of the Consumer*, p. 46.

The United States is excessive in consumption of meat. A gain in nutrition as well as in economy would result from the adoption of meat substitutes.

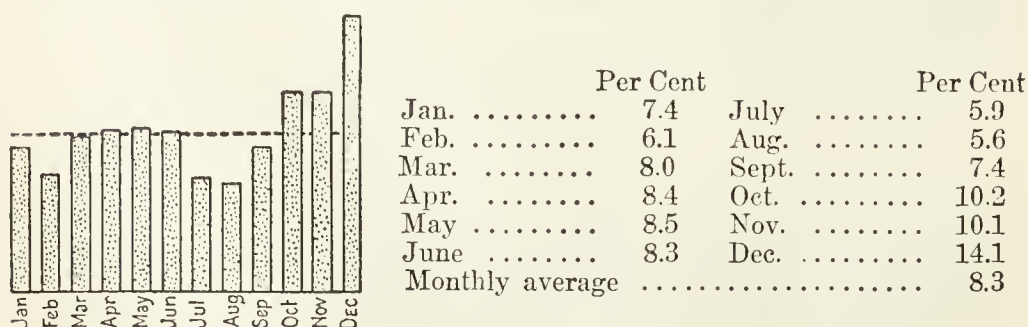
Calories are not by any means the sole test of sound diet. A person might consume food which would yield the requisite number of calories, and yet be a victim of severe malnutrition. A lack of vitamins, of minerals, and of other food elements would mean improper food consumption. Feeding is a question of the proper *balancing* of all food elements. Calorie content is essential, but other factors are equally essential. The harmonious combination of the basic food factors is necessary if food is to build health and strength in the human mechanism.

This brief analysis of food consumption seeks to present merely a few facts which must underly any general theory of consumption. The facts here given are far from complete, but they suggest the kind of fact finding which is desirable as a basis for theories and principles. Before we can theorize about consumption, we must know what is consumed. This method of approach is desirable with respect not only to food, but to clothing, housing, education, luxuries, and all other articles. Limitation of space forbids detailed treatment of each article in this discussion. It is sufficient for present purposes if a way of approach has been marked out, and if the importance of factual analysis has been made clear.

The Main Types of Fluctuation in Consumption.—Consumption of any commodity is not a fixed and unvarying quantity. On the contrary, it is characterized by incessant change and variation. These changes fall within certain main types or classes. The four main types have previously been discussed in connection with production under the headings: seasonal, secular, cyclical, and residual. These definite types of fluctuation appear in individual commodities, and in the aggregate of all commodities.

RETAIL TRADE OF DEPARTMENT STORES

(Per Cent of the Year's Business Done in Each Month) *



* Indexes are for retail dealers in the Second Federal Reserve District. See W. Randolph Burgess, *Management and Administration*, December, 1923, p. 5. See also H. B. Vanderblue, *Problems in Business Economics*, pp. 64-65.

The degree of *seasonal* fluctuation differs greatly between commodities. Staple articles of food show little seasonal variation. Vegetables formerly underwent violent seasonal change, but have been brought to a much more steady rate of consumption by modern methods of refrigeration and artificial cultivation. Articles of clothing and domestic use of coal show sharp seasonal movements. The seasonal variation in consumption as a whole is best indicated by the month to month changes in the volume of retail trade. The diagram on page 86 indicates retail fluctuations, by showing the per cent of the total year's business done by department stores in each month.

Consumption through retail channels as measured by these indexes is customarily more than twice as large in December as in July or August. Not all commodities at retail show the same fluctuation. Much variation appears between different articles, but whatever the direction or degree of fluctuation, the seasonal type of fluctuation has to be reckoned with.

The *secular* trend of consumption is the long time trend, prevailing over a period of years. For instance, the trend of consumption of sugar in the United States over the last hundred years has been an increase from about 20 pounds per capita each year to about 103 pounds per capita. The consumption of cotton has increased from about 40 bales per 1,000 of population in 1890 to about 70 bales in 1924. The consumption of automobiles, radio, electrical household appliances, and many other articles has shown sudden and sharp increase. Other articles, such as wheat, have shown an almost stationary trend. And many articles have shown a decrease. For instance, the per capita consumption of meat in 1924 was about 160 pounds, which was about 25 pounds less than the consumption of meat 20 years earlier. The long time trend, whether upward, downward, or stationary, reflects the evolution of wants and preferences.

The *cyclical* fluctuation is the series of business changes between prosperity and depression. The changes in consumption are indicated with a fair degree of accuracy by the changes in the volume of retail trade. The diagram on page 88 shows the cyclical fluctuations for the period 1919 to 1923 in the sales of department stores, chain stores and mail order houses.

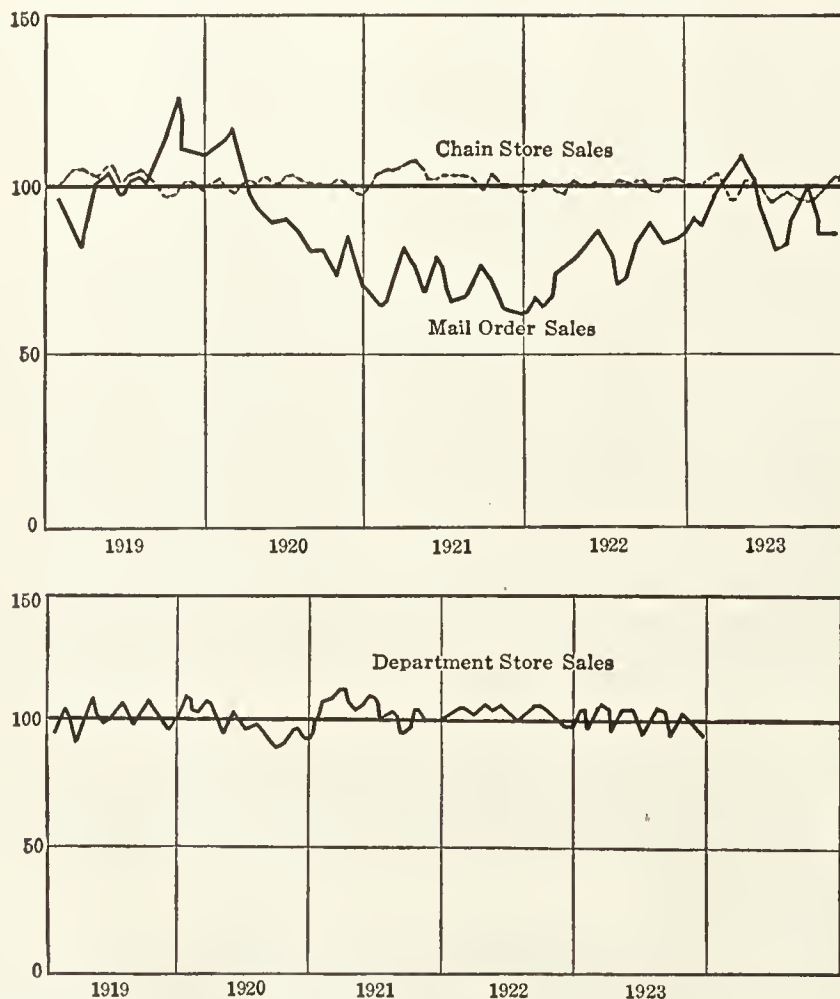
The widest fluctuations of the period occurred in sales of mail order houses, due in large measure to the sharp changes in farm purchasing power between 1919 and 1923. Department store sales slumped somewhat in 1920, but chain store sales remained fairly constant. The three types of indexes indicate that cyclical fluctuations differ greatly between different kinds of stores and different kinds of goods. Changes in consumption are far from uniform among different lines of retail trade.⁶

⁶ For an index of retail trade, combining all principal lines of business, see W. I. King, in *The Problem of Business Forecasting*, by Warren M. Persons and Others, Chapter II. Such an index shows material declines in retail sales corresponding with periods of depression in general business conditions.

It is also important to observe that the waves of retail trade have a much smaller amplitude than the waves of production. The cyclical turns of manufacture are much more violent than those of retail distribution. Retail consumption is comparatively sluggish in its ups and downs.⁷

INDEXES OF RETAIL SALES *

(Percentages of Computed Trend, 1919-1923. Allowance Made for Seasonal and Price Changes and for Secular Growth)



* W. Randolph Burgess, in *The Problem of Business Forecasting*, by Warren M. Persons and others, pp. 39, 48. For current indexes, see current issues of the *Federal Reserve Bulletin*.

The *residual* fluctuation includes all changes which cannot be attributed to seasonal, secular, or cyclical causes. War is an illustration of a powerful residual factor. The conditions of blockade and the neces-

⁷ Further analysis of cyclical changes will be found in later chapters dealing with the Business Cycle.

sity for rationing food introduce factors which are quite abnormal. The Food Administration in the United States mobilized consumption by educating the public to economize in the use of certain foods and to depend mainly upon certain other foods. For instance, owing largely to the effort of the Food Administration to conserve wheat, the consumption in 1917-1918 was kept 16 per cent below the normal average of wheat consumption which would probably otherwise have taken place.⁸ Residual factors also include new legislation prohibiting consumption of certain articles, and "acts of God" such as earthquake, fire, tornado, famine, or flood. All forces which are abnormal and extraordinary must be allowed for in calculating the direction and volume of consumption.

The Division of the Consumer's Dollar.—The consumer's dollar is divided into a certain amount for cost of producing the article, a certain amount for transportation, a certain amount for middlemen's services, and so on. The following tables present typical samples of the uses to which the consumer's dollar is put:⁹

DIVISION OF THE CONSUMER'S DOLLAR SPENT FOR FOOD ITEMS

(Average for 1913, 1916, and 1921)

	Cornflakes	Rolled Oats	Fresh Beef	Bread
Farmer received	22.1¢	22.3¢	54.5¢	29.6¢
Transportation	15.6	9.0	7.4	7.9
Manufacture	11.3	12.7	15.6	10.8
Selling expense	36.8	37.3	19.5	40.5
Mfrs'. and dealers' profit	14.2	18.7	3.0	11.2
Consumer pays	100.0¢	100.0¢	100.0¢	100.0¢

DIVISION OF THE CONSUMER'S DOLLAR SPENT FOR CLOTHING ITEMS

(Average for 1913, 1920, and 1921)

	Suits	Shoes
Raw materials	29.7¢	41.1¢
Manufacturing cost	21.0	17.2
Manufacturer's overhead and selling expense	14.4	10.5
Manufacturer's profit	3.5	2.7
Retailer's expense	26.6	25.4
Retailer's profit	4.8	3.1
Consumer pays	100.0¢	100.0¢

⁸ Raymond Pearl, *Studies in Human Biology*, p. 414.

⁹ Joint Commission of Agricultural Inquiry, 1921, Volume III, *Marketing of Agricultural Products*.

These illustrations support the conclusion that from one-quarter to one-third of the consumer's dollar goes to the grower or producer of materials. Occasionally, the proportion becomes as high as one-half. Also, these figures support the conclusion that upwards of one-half or more of the consumer's dollar goes to the expense of selling and distributing the product. Probably in the great majority of cases, it is true that the cost of marketing goods exceeds the cost of making goods. This distributing cost is excessive in the United States, and can be lightened by greater efficiency in distributing methods. A certain popular notion of a remedy for excessive marketing cost is to eliminate the middleman. This notion, when analyzed, does not appear to offer much hope of tangible results. The middleman performs essential functions, and it is impossible to eliminate these functions. The more constructive proposal is to let the middleman remain, but to insist that he render the essential services of distribution with greater efficiency and economy. Such a plan would aim to eliminate waste in the process of distribution, but would not attempt the seemingly futile task of eliminating the middleman as such.

Consumers' coöperation is likewise an attempt to perform the functions of marketing more efficiently. Consumers' retail stores and wholesale organizations endeavor to make the consumer's dollar go further by taking over the functions of marketing on their own shoulders. The underlying assumption is that the change will make possible the elimination of wastes of competition and the burden of private profit demanded by private middlemen. Closely related with this assumption is the desire to obtain goods of better quality, to insure truth and honesty in presenting goods to buyers, and to reduce the cost of living.

Coöperative stores are relatively of slight importance in the United States but of great importance in many European countries. The United Kingdom alone has upwards of 5,000,000 members of such stores, whereas the United States has less than one-fifth that number. Theoretically, coöperation is an ideal system of distribution, but in the United States great difficulty has been experienced in finding efficient managers for the enterprises. This difficulty is not insuperable, however, as is shown by the success of European experiments. It is not unlikely that consumers' coöperation will be much more important in the United States in the future than it has been in the past.

A Descriptive Study of Consumption.—The present chapter is mainly a description of what goes on in the process of consuming. It presents a factual basis for inferences and generalizations of following chapters. Merely to describe consumption is not to provide an adequate analysis of the subject. Description alone is insufficient. On the other hand, description is absolutely important as a starting point. To know something of the facts of consumption is imperative as a basis for theories and principles of consumption.

Since economics defines consumption at the outset as the satisfaction of wants, it is necessary to ascertain at once what these wants are. We

must know how to analyze what is consumed in order to erect a super-structure of economic principles explaining consumption. We must know what the thing is which we seek to explain in order to create an adequate explanation. The central significance of this descriptive approach to the subject is, therefore, that a realistic foundation has been attempted for the further elaboration of principles and laws.

Knowing *what* is consumed, we must next inquire *why* it is consumed. The next chapter therefore deals with the reasons for consumers' choices. The consumer occupies the rôle of chooser in the economic drama. He continually selects and rejects, in arriving at the final wants which seek satisfaction. The forces which develop new wants and which stifle old wants will be examined. The principles which account for consumers' choices will be the goal of the analysis.

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CHAPTER VII

PROBLEMS OF CONSUMPTION

Consumption a Matter of Making Choices.—The power to decide what shall be consumed rests in the hands of the consumer. This power is so important that the observation frequently made is: The Consumer is King. By his free selection and rejection of commodities, the consumer dictates what shall and what shall not be produced. Consumers' choices determine production schedules. Likewise, consumers' choices determine what shall be demanded. They fix demand schedules. Realizing the pivotal power contained in consumers' freedom of choice, business men engage in all kinds of aggressive selling tactics to persuade, cajole, and inveigle the consumer in his choice-making. Realizing the danger to the consumer from ignorant and injurious choice making, the government passes legislation to prohibit certain choices and to compel others. Thus, choice making is circumscribed with many contending interests, trying to guide and misguide the consumer in one direction and another. The purpose of the present chapter is to analyze the forces which condition and determine the choices of consumers.

The Freedom to Choose Modified by the Economic Conditions of the Time.—Freedom of choice is purely relative to the economic conditions of a given time and place. Primitive man could not elect to ride in Pullman cars. Medieval man could not telegraph or telephone. The housewife of colonial times could not utilize electrical household appliances. The frontiersman could not select the menu of a modern metropolitan hotel. The freedom to choose is limited by the industrial conditions of the day. Consequently, we must view the phenomena of choosing as something progressive and dynamic. The choice making of today is quite different from that of tomorrow. The process is in constant evolution and development.

The basic conditions underlying modern choice making may be summarized under two headings: the technology of production, and the workings of the price system.

Consumers' Choices Affected by Technology of Production.—The *variety* of goods in modern consumption is the outgrowth of the methods of modern production. New forms of food and clothing, new articles of taste and luxury, new devices of comfort and amusement have been invented for the consumer until he is surrounded by a bewildering array of possible choices. The range of choice has been immensely widened. Formerly the consumer had a limited selection of coarse and monotonous foods, but today the delicacies and tidbits of the far corners of the earth

are assembled on a single menu. A century and a half ago, Adam Smith could write that the accommodations of "a frugal and industrious peasant exceed that of an African king, the absolute master of the lives and liberties of ten thousand naked savages." This observation was passed before the advent of the age of steam and electricity. Since that time, producers have perfected for the market countless articles for consumption. Industrial laboratories devote a large part of their scientific research to the discovery of new products to satisfy human wants. The result is evident, for instance, in the contrast between a modern metropolitan department store displaying endless variety of goods and a former rural shop or itinerant peddler displaying a narrow and cramped bagatelle of homely articles. The division of labor has brought also a division of consumption, and range and variety have been substituted for narrowness and monotony.

Secondly, the *volume* of choices has increased. The consumer can select not merely greater variety, but also greater quantity. This advance is due to the increased efficiency of production. Because the machine technology increased the output from a given expenditure of labor, it provided for the consumer a greater volume of goods per capita than any previous industrial régime had provided. Some articles, such as food, do not permit any material increase in volume of consumption. The rich cannot eat more in quantity than anybody else. Consequently the increases in volume of consumption have been directed chiefly to those articles which provide convenience, comfort, recreation, amusement, and luxury. In all these lines increased quantity of consumption has revolutionized standards of living for the working classes as well as for the wealthy classes.

Thirdly, the *quality* of choices has been affected. Routine production and mass output result in a form of output which lacks individual taste and character. Much of the product is uniform and monotonous. The attempt to embody beauty in goods by mechanical devices meets with results which are offensive to eyes accustomed to the artistry of handieraft. Critics are quick to detect all that is vulgar, mean, and shoddy in the machine product. Adulteration, debasement, substitution, lead to inferiority in quality. All of these observations rest upon a definite element of fact. But there is another side to the problem, and one of great importance to the mass of the people. Mass output of the comforts of life has made possible an amount of beauty and excellence in the life of the common man which was utterly impossible in former days. The coarseness and misery of the masses is in process of being replaced by machine-made comforts and luxuries. The artistic qualities of machine-made goods may not compare with the best hand work in a bygone age, but they surpass the meanness which in all previous periods of history has hung like a pall about the head of the common folk. We may conclude, therefore, that the quality of machine-made goods is not necessarily inferior to the hand-made goods otherwise available to the masses of the people. Standardization of quality is the

logical device whereby the machine-made product guarantees service and reliability to consumers. The choosing of standard products is the choosing of products of known quality.

Fourthly, the production technology affects the consumer's choices by the direct influence which *the machine environment* exercises over his whole life. The individual viewed as a producer is simply the consumer in the making. His work is a part of himself. If one-third or more of his life is spent in factory or mine, his character is cast in the mold of his toil. The victim of fatigue and monotony is not in a position to make certain choices at all. The laborer who is exhausted from his day's toil is not in a position to enjoy reading, music, or any of the higher arts, after the day's work is ended. The ability of the consumer to make and enjoy his choices is determined by his experience in the day's work. The kind of toil which he endures conditions the kind of choice making which he can enjoy as a consumer of goods. Not only is his enjoyment limited by his working conditions, but also it is limited by his living conditions. City congestion, screaming street corners, huddling and crowding, hectic amusements, cramped housing, and all the metropolitan orgy of noise and fury throw their influence over the consumer. His choices are conditioned by all the phenomena associated with the concentration of population in urban communities under the modern factory system.

Finally, the *additional leisure* put into the worker's life since the advent of the eight-hour day opens a new problem of choice making. What shall the worker do with his leisure? Much of the new opportunity is wasted upon dissipation and vice. Much of it is devoted to recreation and amusement. Some of it is devoted to art, reading, and education. The use of the additional two to four hours of leisure depends upon the choices which the worker makes with regard to his consumption.

In summary, we find that five important results accrue for consumption from the modern methods of production: First, the range of choice is greatly widened; second, the quantity of choices is greatly increased; third, the quality of choices is seriously altered; fourth, the effect of working conditions upon the ability of the consumer to express his choices is far-reaching; fifth, the increase of the leisure hours in which choices have to be made opens new problems of right choosing for the consumer.

All of these factors grow out of the technology of production. Closely interwoven with them are factors of another type,—factors which grow out of the price system of modern business. These factors relate to the pecuniary aspect of economic life. They are of importance because consumption consists of the spending of money incomes. Choice making, viewed in this way, is a problem of finance.

Consumers' Choices Affected by the Workings of the Price System.—The importance of the pecuniary aspect of consumption has been clearly stated by Wesley C. Mitchell as follows:—

“Instead of producing the goods their families require, men ‘make money,’ and with their money incomes buy for their own use goods made by unknown hands. The economic comfort or misery of a modern family, accordingly, depends not upon its efficiency in making useful goods and its skill in husbanding supplies, but upon its ability to command an adequate money income and upon its pecuniary thrift. Even in years when crops are short and mills are idle, the family with money need not go cold or hungry. But the family without money leads a wretched life even in years of abundance. To the single family, then, prosperity and depression appear not as problems of the adequacy of goods produced, but as problems of the adequacy of money income.

“To the nation the making of money is important in a fashion quite different. Comfort and misery do not depend upon the aggregate of money incomes received by its citizens: they do depend upon the abundance of useful goods. Efficiency in producing useful goods is important to an individual chiefly because it enhances his ability to make money; money making is important to a nation chiefly because it enhances the efficiency of production.”¹

The means of expressing consumers’ choices is wholly pecuniary. That is, it consists of the pricing of goods in terms of money. Consumers vote for the selection of certain kinds of goods and for the rejection of others by deciding for which goods they shall spend their money. Consumers’ votes are dollar votes, and everybody who spends a dollar thereby casts a vote for the selection of the given kind of goods. The consumer makes his choices effective solely in so far as he pays out his money for articles desired. However much he may wish and dream for other goods, if he does not spend his money for them, they are not a part of his economic choices. The consumer’s choice-making consists of a series of decisions as to how, where, and when dollars shall be spent.

By casting such dollar-votes, consumers determine production schedules. If consumers stop spending money for a certain commodity, producers must forthwith stop producing the commodity. If consumers increase the spending of money for a certain commodity, producers must forthwith increase the production of the commodity. What is to be produced depends directly upon what consumers will buy. All producers bow at the slightest whim of the consumers, when that whim is expressed in dollars spent. The making of goods follows where the spending of money leads. Whoever spends money is the absolute dictator of production. In the eyes of business, the consumer is a money-spending monster. The shift of choices from one article to another means the ruthless annihilation of the producers of the one article and the prosperity of the producers of the other. Production schedules are set by the pricing of goods, production is guided by the spending of money, output of goods lies at the mercy of the intake of dollars from consumers. Pecuniary decisions rule the course of industry.

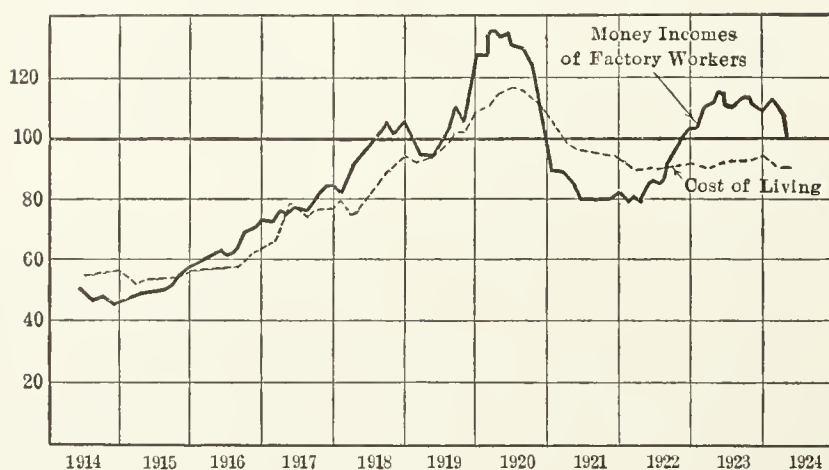
Since choices make themselves manifest through prices, they are

¹ *Business Cycles*, p. 21.

deeply affected by all price fluctuations. If in an imaginary world the average of prices were to remain constant and the relations between individual prices were also to remain constant, consumption would be a static and uniform chain of purchases. But in the real world of the money economy, the average of prices always is in process of change, and the relations between individual prices making up the average also are in process of change. Fluctuation, movement, change, characterize prices, whether taken individually or collectively.

MONEY INCOMES OF FACTORY WORKERS COMPARED WITH COST OF LIVING,* 1914-1924

(Base: 1919-1922 average = 100. Unit = 1%)



* William A. Berridge, *Purchasing Power of the Consumer*, p. 41.

When prices are taken collectively, we have what the statistician designates as "the price level." The price level is the average of a mass of individual prices, and the average is expressed by an index number of prices. To the consumer, changes in the price level are felt in the form of changes in the cost of living. When the price level more than doubled between 1913 and 1920, consumers everywhere lamented and bemoaned the rising cost of living. They complained that they had to part with more and more dollars in order to obtain the same amount of goods. Consumers' incomes for the most part failed to keep pace with rising prices, and the pinch was painful. Falling prices, on the contrary, mean a lower cost of living. Consumers benefit because their incomes tend to fall more slowly than prices. The entire discussion centering about the cost of living grows out of the fluctuating ratio between consumers' incomes and the price level.

Not only does the level of prices in general change, but also the balance between individual prices changes. In one and the same year, prices of wheat, and automobiles, and furniture will rise, while prices of corn, and radio, and clothing will fall. Prices are a system of rela-

tions between individual goods. Individual fluctuations alter the balance prevailing throughout the system. Consumers' choices of a given article are checked by a rising price and expanded by a falling price. Likewise, their choices are shifted from one article to another. When one article becomes too high, substitutes are purchased. When fashions change, old articles are ignored. When novelties appear, consumption drifts into new channels and forms new price relationships. What shall be consumed, how much shall be consumed, when and where it shall be consumed, varies with reference to the changing relationships between individual prices. Choice-making is interwoven with price-making.

Not only do prices fluctuate widely, but also consumers' purchasing power fluctuates widely. The amount of money which consumers have to spend is not a fixed quantity. It varies and fluctuates from season to season and from year to year. Every fluctuation in purchasing power means a change in the choices made by consumers. The diagram on page 96 affords a comparison between fluctuations in money incomes of factory workers and fluctuations in prices entering into the cost of living.

The estimate of money incomes makes allowance for changes in hourly wage rates and for changes in volume of employment. It shows actual earnings in representative manufacturing lines. It is apparent that purchasing power fluctuates out of proportion to cost of living prices. In the fore part of 1920, purchasing power rose in excess of cost of living prices, but later in the year it fell precipitately, and in 1921 stood below the cost of living line. This changing relationship between purchasing power and cost of living can be expressed in the form of an index of real incomes. Such an index is derived by dividing cost of living indexes into money income indexes. The result of this division is the ratio between money incomes and living costs, and this ratio shows the changes in volume of physical goods which can be bought with the changing money incomes. Real wages, or real income, reflects the power to buy goods with a given amount of money purchasing power. The following diagram presents a picture of these fluctuations in real incomes.

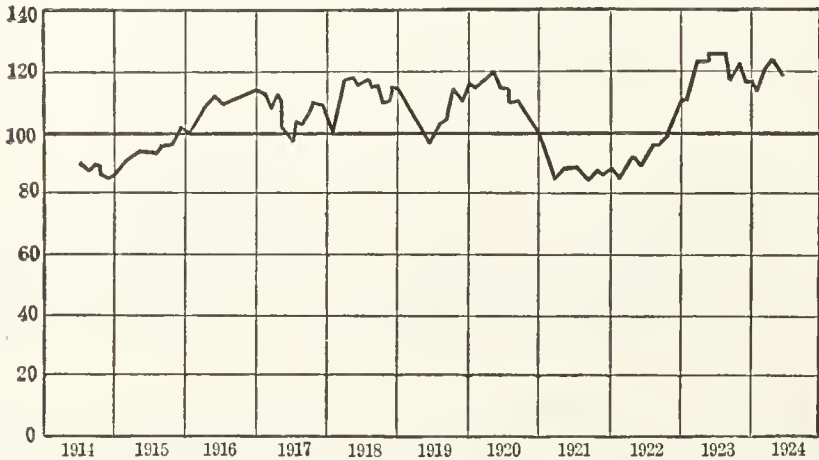
The rise and fall of real incomes implies serious consequences for consumers. In a period of low real income, such as 1921, families are limited in their choices to the more urgent physical necessities of life. In a period of high real income, such as 1919-1920, families are able to indulge in many of the comforts and luxuries of life. The ability of consumers to choose depends upon pecuniary factors. The ratio between their dollar incomes and the dollar prices of the goods which they buy is of vital importance.

In addition to price fluctuations and purchasing power fluctuations, we must consider the personal inequalities of money incomes as factors conditioning the choices made by consumers. The fact that one family receives \$1,000 income and another family receives \$50,000 income makes the widest difference between the choices which each family can make.

The poor family must stint itself in satisfying even the most urgent wants, whereas the rich family can gorge itself in satisfying even the most trivial wants.

REAL INCOMES OF FACTORY WORKERS,* 1914-1924

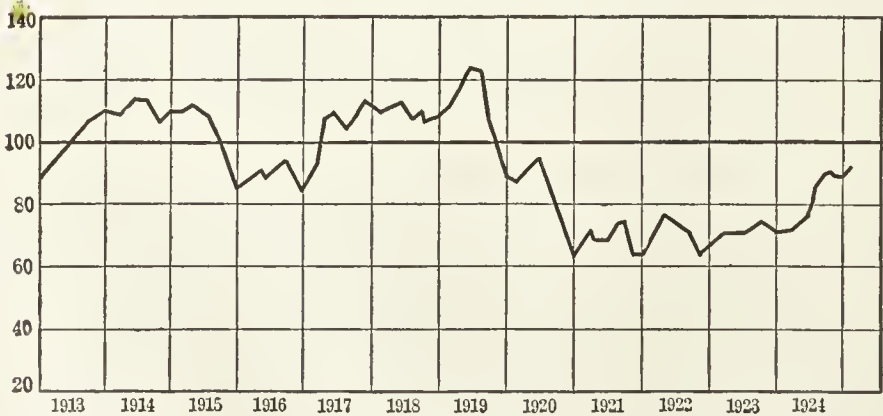
(Base: 1919-1922 average = 100. Unit = 1%)



* William A. Berridge, *The Purchasing Power of the Consumer*, p. 42. The fluctuations of real income presented by this diagram refer to only one class of people, namely, factory workers. Fluctuations of real income also occur among other classes of people. For instance, farming classes meet with fluctuations of purchasing power, and these fluctuations seriously affect the standards of living prevailing among farmers. The following chart indicates changes in the purchasing power of farm products. It represents the relationship between prices at the farm of things which the farmer sells and prices at wholesale of things which the farmer buys. The real income of the farmer is high when prices of farm products are high and prices of other products are low. The high rate of farm purchasing power in 1918 and 1919 contrasts sharply with the very low rate of 1921, 1922, and 1923.

PURCHASING POWER OF FARM PRODUCTS

(1913 = 100)



(Indexes computed by United States Department of Agriculture, by dividing the price index of farm products by the price index of non-farm products.)

The distribution of national income is no less important than its aggregate volume in promoting the well being of society. The happiness and welfare that wealth can give depend as much upon the distribution

as upon the absolute quantity of wealth. Gross and glaring inequality of income begets waste, extravagance, and dissipation among the ultra-rich and penury, distress, and hatred among the ultra-poor.

These contrasts in personal incomes depict some very definite limitations upon the consumer's freedom of choice. Choice making has previously been compared to the casting of ballots. Each dollar spent is a vote for a certain commodity. Using this analogy further, we may note that the unit of suffrage is not per capita but per dollar. An individual casts as many votes for the selection of a given type of article as he has dollars to spend upon it. In political affairs, one man's vote is the equal of any other man's. In economic affairs, one man's vote may be far greater or less than another man's, according as the size of their incomes varies. Unequal incomes bestow unequal voting power for purposes of consumption. Distribution of money incomes means the distribution of dollar votes among consumers. The smaller the number of dollar votes in a man's pay envelope, the more narrow and limited his freedom of choice as a consumer. No man can express consumers' choices unless he has the dollars to back them up. The problem of choice making is, therefore, a question of the proper distribution of incomes. The freedom of choice depends upon the personal inequalities of income.

To summarize the pecuniary circumstances which condition choice making, we may conclude that the spending of money by consumers is governed by three major factors: first, by price fluctuations; second, by fluctuations in the money incomes of given classes of consumers; third, by inequalities in the personal distribution of incomes.²

Money-making by Guiding Consumers' Money Choices.—Under the modern money economy, business finds that in order to sustain profits, it must attempt to guide the choices made by consumers. The production technology requires continuous use of expensive machinery. The goal is quantity output. In order to sustain mass output, business must have mass sales. These can be secured only by the strategy of modern advertising and salesmanship, a strategy which concerns itself with the guidance of consumers' choices. Each business concern sets out to collect the largest possible number of dollars from consumers. In order to make this collection, the business must persuade the consumer to choose its peculiar line of goods. Both production technology and the pecuniary system of business concentrate their effort upon the consumer. He must be made to yield to the importunities and supplications of business. Choose this, choose that, are the cries dinned into his ears from all sides. Screamed at by violent advertisements, dissected by psychologists, assaulted by the "go-getter" or "high-powered salesman," the consumer is being mentally torn limb from limb. Billions of dollars each year are spent for the purpose of breaking down the

² Choices by different grades of income receivers are shown in the earlier treatment of consumption dealing with family budgets. See also, E. A. Winslow, *Purchasing Power of the Consumer*, pp. 125-258.

so-called "consumer's resistance." The function of the sales department is to "make the consumer buy."

The balance of the present chapter deals with the methods by which consumers' choices are guided. These methods are classified under three headings: first, guidance by private business; second, guidance by public agencies; third, guidance by the evolution of standards of living.

Guidance of Choices by Private Business.—Business may set out to create new wants or may content itself with satisfying old wants. The viewpoint of the business concern is highly individualistic, in that the endeavor is not so much to increase the total national consumption as to increase the share of consumption which is reflected in purchases from the individual concern. Business competes for the patronage of consumers, and such competition means that each single enterprise tries to take patronage away from all rival enterprises. Guidance of wants consists largely of making the consumer want the product of concern A instead of the product of concern B.

Salesmanship and advertising are the fundamental methods of business control of wants. The point of view of these business devices is well expressed in the commonly used slogans: "Overcome sales resistance"; "Break down consumer resistance." The consumer is looked upon as being in a state of resistance to sales appeal. His resistance must be battered down by the artifices of sales psychology.

The psychology of salesmanship and advertising rests upon the discovery that a certain stimulus will bring a desired response. The desired response is an act of purchase of a given commodity. The stimulus is a series of appeals calculated to evoke that purchase. What the psychologist terms a response is essentially the same thing as the economist calls a want.

The consumer is a bundle of wants or responses. The reactions to stimuli found in the environment give rise to the character and behavior of the organism. These reactions involve the perception of stimuli, that is, perception of color, taste, odor, touch, dimension, or sound. They also involve the muscular movements of the various parts of the body and the chemical changes undergone in the blood, glands, and bodily organs. In consciousness, these processes are recognized as emotions, feelings, impulses, memories, habits, ideas, reasoning. Consumers' choices are the tangible outcome in terms of behavior of a series of inter-related physical and psychological reactions.

The process of directing a consumer's choice and completing an act of sale may be considered as a series of developments. Certain stages in the process may be recognized and isolated. There is no hard and fast classification of stages of selling, but for purposes of convenience we may adopt the following classification: attracting attention, securing interest, arousing desire, creating belief, securing decision and action, and rendering satisfaction. Detailed discussion of these stages belongs to special treatises on sales psychology.

The strategy of controlling consumers' choices has to take into ac-

count the element of reason in human behavior. From the business man's standpoint, is it better to deal with the consumer as a creature of reason, or as a creature of impulse, habit, emotion, and suggestion? Undoubtedly, underlying all sales strategy is the reasoning factor. Business faces the fact that the consumer gives "reasons," to himself and to his neighbors, for all his actions. Business must, therefore, fill the consumer's mind with "reasons" for buying a given commodity. Such reasons must be good and sufficient in the consumer's mind, and must make him feel convinced that his choices are logical and rational.

How shall business feed these "reasons" into the consumer's mind? The solution of this problem has been greatly simplified by the psychological discovery that most so-called reasoning consists of doing what one wants to do and finding plausible and agreeable excuses afterward. The drive to action is impulse, emotion and habit. The justification for action is much in the nature of an afterthought. The consumer must prove to his neighbors and to himself that what he wishes to do is fine, and strong, and good. Consequently, he rationalizes his action. If he wishes for the sake of social prestige to indulge in luxury and extravagance, the consumer contrives the best sounding reasons in the world for his foolish display. If he indulges in enjoyments that are selfish, licentious, unsocial, or shameful, the consumer sugar-coats them with altruistic and righteous justifications. Our thinking as consumers becomes in large measure an effort to find plausible and flattering reasons for what we want to do and think and feel and be. Business helps the consumer to rationalize all his choices, good, bad, and indifferent. It presents him with reasons both specious and sound to justify his selections of various goods. Advertising appeal and sales talks both abound with attractive "reasons" for purchasing the desired product.

Consumers' rationalization by these processes is quite different from the pure reason of the logician and the scientist. The element of reason in sales psychology is utterly inferior to the careful analysis of scientific thought. The strongest reasons for not buying a commodity can be broken down by vigorous sales and advertising campaigns in which non-rational appeal is made to impulse, emotion, and imagination.

Even if a consumer endeavors carefully to weigh the advantages and disadvantages of a purchase, he is likely to be outmaneuvered by sales strategy. Salesmen are taught that all possible objections which a consumer can raise against buying an object can be classified under certain headings. For each standard excuse, there is a stock answer or refutation. The wit and ingenuity of the consumer is no match for the refined and standardized strategy of the salesman in overcoming *reason* with "reasons." Consumers' reasons succumb to the onslaught of sellers' reasons. In presenting reasons, salesmen must not seem to argue. "Never argue" is the admonition universally given to salesmen. "Gently lead the consumer's mind away from the objection, and talk about something entirely different, in order to give the consumer a pleasant feeling tone." Such is the strategy of manipulating what the

consumer thinks are his reasoning powers, into the making of choices which suit the needs of business.

Reason, common sense, thinking, are part of the sales resistance which sales effort tries to break down. New reasons must take the place of old before new products can be marketed.

Salesmanship and advertising, for the most part, stress the importance of feeling, impulse, suggestion, and habit. Pictures, colors, and slogans in advertising must convey a pleasant feeling tone if they are to produce sales. Appeals must stimulate primary impulses and instincts. Imagery must be aroused in the consumer's mind, with a view to suggesting a given choice of goods. Suggestion must be repeated time without end, because repetition forms a fixed mental habit. Habitually, the buyer must come to associate in his mind a certain trade-mark or brand with his need for a particular kind of article. When he thinks of clothing, for instance, he must unconsciously and by force of habit associate his need for clothing with a special name or make of clothing. Reiteration of suggestion forms habit paths which govern the action of the consumer. Simply the display of a name, a picture, or a catch phrase countless times predisposes the consumer to buy the commodity in question.

In the midst of such a bombardment of irrational selling appeals, the consumer has one powerful factor of self-defense. That factor is the necessity for giving the consumer satisfaction from his choice. A famous advertising phrase runs, "Satisfied customers are our best advertisement." Leading retailers display a sign which reads, "Satisfaction guaranteed." Such phrases are a recognition of the fact that all sales effort is incomplete unless a purchase can be made to mean full satisfaction to the consumer. Satisfied customers repeat their orders, others refuse to be deceived again.

An article which is incapable of giving satisfaction cannot be marketed permanently, no matter how powerful the appeal to emotion and imagination may be on advertising pages. For a little time, predatory selling may be commercially profitable, but before long the suffering public wreaks vengeance by refusing to buy further articles of the predatory concern. The consuming public is a ruthless tyrant in this respect. It has no mercy upon a dealer who offers goods which fail to yield satisfaction. It will let him perish in misery by its power of ceasing to buy his goods. No power of annihilation could be more effective than this.

The need for creating satisfaction underlies an important modern development in the direction of selling service as well as goods. A housewife who buys electrical household appliances receives a guarantee of service for a year or some other stated period of time. Service implies instruction in the use of the appliance, and the supplying of repairs needed because of defects of workmanship or material. The automobile has brought into prominence the element of service in making

satisfied customers. In its many phases, the selling of service is an evidence of the attempt to insure the satisfaction of consumers.

It does not follow that all things which satisfy the consumer contribute to his well being. Extravagance and waste may yield their satisfactions, but may detract from the health and welfare of the individual. The fact that a good brings enjoyment and amusement does not guarantee that it will bring a larger and better life to the individual. Many of the satisfactions of the modern age are looked upon by critics as a menace to civilization itself. Satisfactions are not synonymous with welfare. Dangerous satisfactions tempt the consumer at every hand.

Advertising and salesmanship are often defended upon the ground that they are necessary in order to educate the consumer. Sales effort is said to supply information on the basis of which the consumer can choose the more intelligently. This defense rests, in a degree, upon sound economic foundations. Wants do not readily develop by themselves. They are too largely controlled by custom and inertia. Wants develop only under the stimulus of some outside influence. The rapid adoption of the automobile and of electrical conveniences in American life is in no small measure due to the fact that the people were educated to the use of such articles by intensive advertising and salesmanship. Progress in standards of living is fostered by high grade sales effort.

But there is an important limitation upon the educational value of modern sales effort. The educational agency is not an unbiased, impartial authority, animated primarily by the desire to render public benefit. On the contrary, the agency is a profit-seeking corporation, animated primarily by the desire to make private profit. The agency is mercenary in motive and commercialistic in design. It educates the public to consume those things which yield the most profit to the sellers. Often the things which yield most profit are not the things which the public most needs. The whole technique of selling is altogether too biased and mercenary to pose as a sound educational enterprise. No one would think for a minute of placing our public schools in the hands of certain individuals, animated by the desire to make the utmost profit out of public education. Yet consumers' education is largely at the mercy of shrewd business genius, anxious to educate the public to choose those articles which give the greatest profit to business. As an educational or informational institution, sales effort doubtless accomplishes many constructive results, but it falls materially short of the ideal of an unbiased authority for consumers to follow.

The question with regard to advertising and salesmanship is no longer whether they are to become a part of our economic system. They are already a part of the system, and give every appearance of permanency. The real question is how all sales effort can be made to result in public benefit as well as in private gain. The only thing to be abolished is the undesirable and unethical in advertising. Consumers have little reason to desire the abandonment of advertising as such. The

problem is how to standardize those sales practices which promote public well-being, and how to eliminate all else.

The Guidance of Choices by Public Agencies.—The consumers' problem of choice is vastly more complex today than in a former generation. Where formerly consumers had to choose from a small number of styles and types of goods, now they have to choose from thousands of possibilities. Where formerly town life left the consumer a wide amount of freedom and independence, now it commits him to existence in an apartment with attendant crowding and congestion. Where formerly reading matter was limited to a few publications, now it is showered upon the individual at all hours of the day and in all places. His mail is heavy with circulars; newspapers and magazines flaunt beautiful temptations in his face; bill boards, street cars and shop windows glare at him with violent displays; salesmen of all varieties besiege him at his office and at his home. Telephone and telegraph connect him at every instant with all parts of the community. Automobiles encumber his path or rush him at hectic speed to his destination. Rules, regulations, and restrictions pile up and must be obeyed. Immense complexity has entered into the choices of the modern consumer.

As the number and variety of consumers' choices widen, the consumer is able to know less and less about the merits of any single choice. It is a sheer impossibility for him to have trustworthy knowledge of real values. He snatches scraps of information by hearsay from one person and another. He glimpses the appeals supplied by advertisers. But at the best, such sources of information give only a thin smattering of information on the most essential choices which the consumer makes. He generally falls back upon confidence in the quality of standard makes and brands of goods. The consumer depends largely upon the ability of the dealer to see that his true self-interest requires the supplying of goods of standard quality at fair prices.

In this complex situation, various forms of public protection and guidance of the consumer have come into usage. Numerous laws have been passed stating what the consumer shall not do. The law prohibiting the use for beverage purposes of intoxicating liquors is an example of the drastic power of the government in regulating consumption. Some states have enacted laws restricting the sale of cigarettes. Laws forbidding the sale or use of opium are on the statute books. Laws for the maintenance of pure food and drugs are in operation. Other laws require standards of quality in goods and forbid misbranding or misrepresentation. Even with these laws, however, the consumer is none too well protected against so-called all wool cloth which is mainly shoddy, or solid mahogany which is merely stained birch, or alleged "real" articles which are cheap and inferior imitations. Taxes may be used to influence consumption by placing heavy revenues on luxuries and wastes and light revenues on necessities. Sumptuary legislation attempts to protect and guide the consumer for his own benefit.

All such legislation manifests the growing conviction that *laissez*

faire in consumption is undesirable. *Laissez faire* may have suited an earlier situation of comparative simplicity, but it is inadequate to the modern complex situation. On the other hand, sumptuary legislation is in danger of becoming a meddlesome interference with the personal liberty of the consumer. Extremes of dictation to consumers are undesirable. It is difficult indeed to decide just where the limits of state guidance should be drawn. No abstract principle or absolute theory of personal rights and political prerogatives satisfactorily indicates a dividing line between state control and private rights. A process of political trial and error promises to arrive at safer results. Political experimentation with various alternatives in consumers' guidance should give the flexibility necessary to adapt government policy to social need.

Educational institutions also work toward the end of guidance of consumption. The common schools emphasize the laws of hygiene and health and endeavor to build sound bodily and mental habits in children. In recent years marked expansion has taken place in the teaching of home economics in schools and colleges. Such instruction includes studies in dietetics and nutrition, costume design, clothing, hygiene, care and training of children, interior decoration, and house management. These studies develop the science and art of home-making, and tend to raise the standards of appreciation among consumers. They lead to improved habits of consumption and higher types of want satisfaction.

Social organizations of many types focus their effort on the consumer's problems. The collective effort of the community is necessary for the maintenance of health. Contagious diseases can be controlled only by collective effort. Sanitation in cities depends upon a common water supply, a common sewage disposal, and a common supervision of living conditions. Civic associations aid in town planning and zoning, in bringing music and art to the community, and in maintaining a proper social life. All such organizations, whether public or private, seek certain definite standards of consumption. They are a recognition of the fact that consumption has ceased to be a purely individualistic affair and has become a community affair. What harms one harms all and what helps one helps all. Collective effort is necessary to guide consumers in the modern group type of life.

One problem in particular which engages the attention of all agencies is the prevention of waste in consumption. It is commonly estimated that the American people waste about 10 per cent of the edible food which is purchased. Waste occurs through ignorant buying, in the form of selection of poor quality, of payment of high prices, of buying at the wrong time. The people of the United States have the international reputation of being a particularly profligate nation. To combat this condition, both the government and private social agencies attempt to inform and convince the people of economies in all departments of consumption.

For the effective influencing of consumers, certain new arts and devices have come into vogue in recent years. These are contained in the technique of publicity and propaganda. The World War more than any other single factor was responsible for developing the importance of propaganda. Propaganda was a means of stimulating patriotism at home and disaffection in the enemy countries. The Food Administration used publicity as a means of economizing in the use of certain scarce foods and directing consumption toward foods which were available in plenty. Seeing the effectiveness of propaganda in the hands of governments, private business associations took up the same weapon for business purposes. Large industries and leading trade and commercial associations maintain publicity experts, whose duty it is to put before the public mind in multitudes of ways information calculated to predispose the public favorably. This tendency is fraught with some danger to the public, since the information so broadcasted is tarnished with the selfish and mercenary point of view of some particular business organization. The public can not rely upon the impartiality or accuracy of propaganda news. Much of propaganda is aimed not to lead but to mislead public opinion. As an offset to commercialized propaganda, public agencies resort to the same technique to persuade public opinion in a more disinterested way. Broadly viewed, propaganda carries the danger of forming public choices on half truths, plausible deceits, and specious suggestions.

Over against the powers of propaganda we may set the powers of mature reflection and discriminating judgment. The possibility of developing sensitive appreciation of higher and better choices is a real one. Education, information, stimulation of rational choice making, offer hopeful pathways of progress. The consumer may, by taking careful thought, weed out of his budget the wastes and futilities which beset him at every hand. He may balance the proportions spent for food, for clothing, for recreation, for education, and for each particular purpose. He may plan his expenditure so as to save an ample amount to buy his home, to carry his life insurance, to provide an estate for his old age. He may restrict the wanton play of fashion and foible in his choices, and adhere to more permanent and enduring satisfactions. Although all the powers of emotion and of impulse are utilized to batter down his reflective and rational resistance, nevertheless there is a vitality and latent strength in these resistances which offers the only sound hope of progress.

As reflective judgment is brought into action, the importance of cultural factors in consumption becomes stronger. The literature which appeals to a people is a fair index of the standards of appreciation. The music, the dancing, the pictures which a people like, are a measure of their æsthetic level. The features which they demand in their newspapers and magazines reflect their true character. Their desire to be informed upon developments in science and in thought is a register of their intellectual curiosity. One caustic criticism brought against

contemporary standards in all these respects is that decay and degeneration have set in. All that is connoted by "the jazz age" has reference to new and different levels of artistic interest. The need for a maintenance of high standards of art, appreciation, and culture is a pointed challenge to the public agencies hoping to guide consumption.

The Unconscious Evolution of Choices.—The foregoing discussion deals with the deliberate guidance of wants. But deliberate guidance is not the whole explanation of choices. Of equal importance are the mass of unconscious choices made chiefly as a result of custom and social habit. Sociology and social psychology have made clear the force of group tradition in guiding human conduct. The group traditions of China differ sharply from those of America, and those of peasant Russia differ from those of metropolitan England. Not only do customs differ from country to country, but also they differ in the same country from one period of time to another. The customs and conventions of colonial days were as much different from those of the Civil War period as the latter were in turn different from those of modern America. The traveler and the historian are the most competent authorities to relate the countless differences in social custom as between country and country and generation and generation.

Various terms have been used to express the many phases of social custom in guiding choices of consumers. In economics, the common phrase is "the standard of living." The standard of living is the number and variety of wants which a given class of people at a given time and place deem it necessary to satisfy. It is a state of mind, a psychical fact, a mass of ideas. People think it necessary to wear a certain style of dress, to drive a certain make of car, to live in a certain grade of house. The fact that they think each standard of expenditure necessary is the all-important fact.

Standards of living are in large measure the accumulation of folkways over hundreds of generations. Each new generation inherits in the form of custom and convention the codes and canons of the previous generation. This handed-down lore of social custom constitutes the social heritage of the race. The child grows into customs of his forefathers. Each modern custom is rooted in the history of a long past. The social heritage is the climax of prolonged social evolution. As the child grows up in a given social environment, the ways of life seem natural, right, and good. The ways of the past become the ways of the present, and millions of minute folkways give character and content to the standards of living of the present day.

The social heritage of today, although designed by past generations, nevertheless is steadily undergoing current change and modification. The contact of mind with mind develops new outlooks and new thoughts. One school of sociologists maintains that virtually all social progress comes from the contacts of cultures of different human groups. Migration, immigration, travel, and commerce are claimed to be the great forces which break up the ruts of national habit and provincial custom.

The mixing of peoples is, according to this view, the all-important force which guides the evolution of choices and wants. Although this force of culture contacts is of great importance, we probably should not assign to it a position of such exclusive importance. Other forces are also of marked importance. Originality, invention, new ideas, may appear independently of a mixing of peoples of different cultures. Science, research, and discovery set in motion new wants and new desires. The new wants are at first a luxury for the fortunate few. But gradually the wants spread among the mass of the people and, for all but the very poor, come to be looked upon as necessities of life. Two forces of evolution of wants are, then, of primary importance, namely, contact of different cultures and originality, science, invention, and discovery.

When wants become firmly established in social custom, they exercise a kind of tyranny over the individual consumer. The individual is not free to depart from what is considered good form and good taste. He dare not violate the conventions of the group, for fear of becoming an outcast. The standards of fashion impose arbitrary restraints upon the consumer's freedom of choice. It is not so much the individual's will which chooses as it is the social will of the group. The social codes stamp a pattern of uniformity upon consumers' choices. Obedience to the canons of good form and propriety ordinarily is taken as the test of safe and sane citizenship.

The binding force of social custom is nowhere more clear than in all matters of pecuniary emulation. Such emulation involves countless ways of displaying luxury and extravagance. Prestige in consumption is attained by ostentatious expenditure. Social esteem is acquired by making a prominent show of rich living. The result is competition among consumers to determine who can make the most glaring and gorgeous expenditure of money. Competitive extravagance and conspicuous waste penetrate all modern standards of living. The leisure classes at the top of society set the pace. Their conspicuous indulgences in the sports, the arts, the luxuries, and the dissipations of high society constitute a standard envied by all other classes. The middle classes seek to emulate the fads and foibles of those higher up in the scale of spending, and even the laboring classes are prone to copy and imitate in ways often crude and pathetic. Each consumer tries to keep up with the class above. The pecuniary canons of taste filter down from the rich to the poor. A man is known by the size of his income and his dramatic display of the art of spending. Pecuniary emulation is a dominating factor in setting the standards of living and in guiding the course of consumers' choices.

Ideal Standards versus Actual Standards.—The standards of living which have been discussed are the actual standards of modern life. These may be compared with imaginary or ideal standards of living, with a view to discovering how the actual deviates from the ideal. Thus we can construct quantity food budgets setting forth the requirements for nutrition in terms of calories, proteins, fats, vitamins,

and the like. We can discover the minimum amount of food elements necessary to yield a balanced and adequate diet. Then we can compare with these theoretical food standards the actual food habits of given classes of people, and can ascertain in what respects actual standards of food consumption fall short of ideal standards. This same process can be applied to other parts of the family budget. The chief difficulty is that in many cases there are inadequate objective facts to serve as a basis for drafting an ideal standard. What, for instance, is an ideal standard of dress? Personal opinion and fancy deeply affect the answer, and yet, underlying countless differences of personal opinion, there are certain standards of health, decency, economy, display, and convenience which can be set up. Even in matters of dress, those who fall short of the standards of good taste are quickly detected and branded with a certain social taboo. No matter how much personal whim and fashion may enter in, certain ideal standards can be set up, and used as a point of comparison with actual standards. Even though complete ideal standards cannot be set up in all cases, there can be established numerous partial standards to be used as a basis of comparison with actual expenditure.

Progress in standards of living, in so far as it can be brought about by deliberate social effort, must largely be a result of setting up ideal standards as goals toward which to strive. Gradually, by processes of education, advertising, and propaganda, new habits and customs can be formed which square with the ideal standards.

Population and Standards of Living.—The standard of living has long played an important part in theories of population. The relationship involves two main propositions: First, that growth of population tends to encroach upon the means of subsistence and to keep the standard of living low; second, that growth of population tends to be checked as a result of the determination to maintain given standards of living by means of restricting the birth rate.

The first proposition was a cardinal point in the doctrines of Malthus. He viewed with dismay the future of human kind, because he anticipated that the multiplication of mouths to feed would exceed the resources wherewith to feed them. The congestion of population and the low standard of living in many parts of the world, such as India or China, illustrate the reality of this tendency. But this tendency is not inevitable and uncontrollable. A counter force has been brought into operation, namely, the desire to keep the size of families small enough to permit the maintenance of a high family standard of living. In each country, the people of larger incomes and higher education are so firmly set upon having the comforts and enjoyments of life that they avoid the burden of care and duty involved in large families. The standard of living among the higher groups acts as a drastic restraint upon the birth rate.

The balance struck between these opposite tendencies at any one time varies a great deal between countries and between classes in the

same country. At one extreme are countries dominated by the first tendency, and characterized by overpopulation, congestion, and low living standards. At another extreme are countries dominated by the second tendency, and characterized by "race-suicide," small families, and high living standards. The balance is not a fixed and constant ratio between population and living standards, but is a changing ratio in process of evolution in one direction or another.

Welfare and Consumption.—Why should economics fear to deal frankly with the welfare outcome of economic action? The end all and be all is certainly not to grind out cold chunks of commodities nor to pour lifeless dollars into consumers' pockets. The economic struggle is all in vain, full of sound and fury yet signifying nothing, unless it builds human personality, releases capacity, stimulates the mind, gives appreciation of beauty, makes healthy bodies, and insures that men shall have life and have it more abundantly. From every angle comes the query, "What is to be gained by merely heaping up that material wealth with which civilization is already top-heavy? Wealth and ever more wealth. Is this to be our everlasting cry? Forever grasping at the means and forgetting the ends of human life and welfare? The need of the nation is not more wealth, but more wisdom in the art of using wealth toward rational aims. This is the slowly attained ideal of the worthiest economic thought of our time. It makes economics not the slave of industry, rather it would make industry the servitor of mankind." ³

In an age when nearly every one acts upon the assumption that the most important thing in life is the size of his income, it is appropriate to sound the challenge that the most important thing in life is the quality of his personality. Smallness, meanness, pettiness, abound in the circles of high incomes as well as low. More wealth does not seem to mean more character, more health, or more happiness. As one author expresses the matter, "Men waste their substance in a vain and rapacious scramble for the power to acquire possessions and command services that bring satisfaction neither to themselves nor to others, but which nevertheless deprive whole hosts of their fellow creatures of true forms of well being. The welfare of wealthy persons in regard to quite ordinary matters of every day life is often very low, and that of poor people relatively high." ⁴

Graham Wallas has said, "Two types of industrial organization might be equally efficient in the production of wealth, and yet life under one might be happy and under another unhappy." ⁵ A similar observation is made by Seager in a biographical note on the life and work of

³ F. A. Fetter, *American Economic Review*, March, 1925, p. 26.

⁴ William A. Robson, *The Relation of Wealth to Welfare*, pp. 5, 169. Compare the statement of E. Cannan, "It is a commonplace that material welfare does not increase *pari passu* with increasing income," in *The Economic Outlook*, p. 273. Also compare the statement of R. T. Ely, "There are two kinds of poverty: one a lack of goods for the higher wants, the other a lack of wants for the higher goods," in *Outlines of Economics*, p. 5.

⁵ Graham Wallas, *The Great Society*, p. 321.

the late Simon N. Patten: "In Germany he perceived that, though much poorer in their command of commodities than the farmers of Illinois, the professional families he met in Halle were in many ways better off. Through varied and coöperative habits of consumption the Germans in great measure overcame their disadvantages in production. Halle was well provided with public parks and playgrounds. There was a municipal theater and opera house. Inexpensive restaurants were everywhere, making possible easily arranged excursions to the country and pleasant evenings of social intercourse for the relief of overworked housewives. Observation of the way in which the Germans utilized these advantages made him realize that social welfare depends quite as much on the way in which wealth is used as on its amount, a conviction which influenced all his economic thinking."⁶ As a result of these observations, Patten's interest centered largely in the doctrine that improvements in consumption may contribute to further progress quite as much as improvements in production.

Economists have associated the phrase "pleasure-gain" with the process of satisfying wants. But a survey of modern consumption reveals the fact that a great deal of want satisfaction yields neither pleasure nor gain. The pains and ills of consumption surround us at every hand. The problem before economists is to promote the art of living, the wisdom of choosing, the skill of consuming. From the same product, much greater human benefit can be derived. From the same wealth, much greater contribution can be made to the good life.

Conclusion.—The logic of our analysis of consumption may be divided into three main steps. First, we attempted to observe *what consumption is*. This step in analysis involved a factual and descriptive treatment of what actually occurs in the process of consumption. Second, we attempted to find *why we consume as we do*. This step involved an explanation of the forces which control the choices made by consumers. The third step, taken up in the ensuing chapter, treats the following problem: *Given wants as they are, what theory of value logically follows?* This step will involve an analysis of the classical economic theories of utility and value.

First, a factual statement of what consumption is; second, a theory of choice making, explaining why consumption has come to be what it is; third, a theory of value which, taking consumption as we find it, explains the process of exchange in modern economic life. Such is the chain of logic which unifies the various phases of the theory of consumption.

⁶ Henry R. Seager, in *Introduction to Essays in Economic Theory*, by Simon N. Patten, p. xiii.

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PART III

VALUE AND EXCHANGE

CHAPTER VIII

VALUE THEORY

The problem of value is to explain why goods exchange at various rates. It must explain, for instance, why a suit of clothes may be equal in exchange to perhaps ten pairs of shoes, or why a loaf of bread may be equal in exchange to only one-fifth of a pound of a certain kind of meat. What determines the countless rates at which goods exchange for each other?

The explanation of value is limited to one definite phase of choice making or want satisfaction, namely, to the overt act of purchase. The cause of the decision to purchase is dealt with separately in a theory of choices. The source and origin of the want for goods is a part of the same theory of choices. This previous theory of choices brings the matter up to the stage where the overt act of choice has been committed. No longer are we concerned with the question: Why did the individual make such and such a choice? Our whole concern now is with the question: The choice having been made and acted upon, what is the process of valuation which governs the rate at which goods exchange? Our starting point in value theory is a unit of behavior, of performance, of conduct. For the present we need not go back of the act, to question why the act occurred. We will abstract from the whole experience simply one definite, concrete aspect, namely, the act of purchase itself.

The problem of value has taken on increasing importance with every advance in the division of labor and in specialization of tasks. Each individual produces for others. The result of his toil is a commodity which will be offered for sale. Production for sale instead of for self has immensely complicated the exchange of goods and the range of values. Practically all goods must be thrown upon the market and taken from the market before they reach the final user or consumer. Consequently ratios of exchange between goods have to be built up on a vast scale. Specialization in production multiplied enormously the valuations required before goods are consumed.

Theories of value have occupied a leading part in practically all attempts at economic analysis. Many economists have maintained that value theory is the exclusive subject matter with which economics is concerned. From this standpoint, whatever cannot be put in some

logical niche of value theory does not belong in economics at all. Value theory is claimed to be the whole of economics. This somewhat extreme view has largely dominated the science of economics during the past generation. Textbooks of economics have made the backbone of their analysis merely a theory of value and exchange. It is true that nominally they gave space to such subjects as production and consumption, but always their analysis of these subjects was limited to phases which served simply to bolster up value theory itself. All other matters were subordinated to the great central matter of value theory.

At the same time that economists placed overwhelming emphasis upon value theory, they could not agree as to the content of that theory. The master minds of the science were continually embattled in brilliant disputation over the premises and details of value logic. Antagonistic schools of thought ranged themselves on opposite sides of the argument, and created a magnificent volume of literature dealing with the fine points of the logical system of value. The history of value theory is a story of opinion against opinion, absolute laws assaulted by heresies, intricate systems of logic no sooner established than demolished.

The younger generation of economists have often revolted against the traditional doctrines of value. Some have rejected such theory bag and baggage, as being a worthless mass of argumentative junk. Others have seen fit to ignore value theory, on the assumption that it is possible to avoid the embarrassment of either rejection or acceptance by simply letting the matter alone. Others have tried to reform the older value theory and to bring it up to date. And still others have loyally accepted the faith of the forefathers without complaint. The present writer takes the position that orthodox value theory is useful within limits. For certain purposes, it affords explanations which are of real use. It is not desirable to make value theory the all-important center of the science, and to exclude from economics other matters of great importance. But for many imperative purposes, value theory is utterly and hopelessly inadequate. It is decidedly insufficient as an explanation of the technology of production or of the guidance of consumers' choices. It is decidedly insufficient as an explanation of the pecuniary ways of modern business or of the fluctuations up and down of practically all parts of economic activity. Value theory is essential within limits, but is inadequate as a whole and complete basis for the science of economics. It is the purpose of the author, therefore, to state the principles of value and to use them for what they are worth, but positively not to be bound and handicapped in all other departments of economics by the fault of making value theory the end all and be all of the science.

The Value Concept.—In order to be classed as an economic good, an article must have the power to satisfy human wants. Goods which are not wanted do not come within the economic category. This want satisfying power of goods is called their *utility*. The utility of a good is measured by the extent to which it is capable of satisfying a person's wants.

The utility of a good indicates the value placed upon the good from the standpoint of its usefulness. The term, "*value in use*," refers to this positive quantity of desirability or appeal in any commodity. Value in use is different from *value in exchange*. The latter is a ratio of comparison. It is the ratio at which goods may be exchanged. It may be defined as the power of a good to command other goods in exchange for itself. This power to command depends of course upon the relative strength of desire for different articles. The ratio of value in exchange depends upon the positive quantity of desirability which each article possesses. The word *value*, as used in value theory, refers to value in exchange. When value in use is the idea to be conveyed, the term *utility* may be employed.

The term utility does not connote any ethical worth. Opium has economic utility as well as bread. Vice has economic utility as well as virtue. The test of economic utility is strictly that somebody wants the good. Whether the want be good or bad, it equally reflects the economic utility of the good. Utility is strictly neutral on the moral aspects of want satisfaction. This attitude may at first seem cold blooded and ruthless, but in fact it is not at all a proof of indifference to questions of welfare. In previous chapters dealing with consumption, we have already freely discussed welfare aspects of want satisfaction. But in dealing with value theory, it is an advantage to confine attention definitely to the results of choice upon value, no matter what the welfare consequence of the choice may be. Whether a want be good or bad, it has precisely the same effect upon value in exchange. Whether a choice lead to glory or disaster, it has the same effect upon value in exchange. Given wants as they are, regardless of their ethical implications, we may, therefore, seek to trace the process of valuation.

Value in use or utility is the subjective phase of value. These concepts refer to the psychic experience of desire, want, and satisfaction. Value in exchange, on the other hand, is the objective phase of value. It refers to ratios at which goods exchange each for the other.

Diminishing Utility and Marginal Utility.—Our desire for a commodity diminishes as we increase the number of units available for consumption. The utility becomes less and less with each successive installment of the commodity. The satisfaction derived from each unit decreases with each additional unit. To an assumed individual, one pair of shoes is essential, a second is convenient, a third is a luxury, a fourth is superfluous. One loaf of bread is a necessity to a family, a second loaf could be enjoyed, a third loaf would not tempt the appetite, a fourth would be wasted. Repeated doses of the same article yield gradually decreasing enjoyment. Desire becomes appeased, and wants become satisfied.

If the stock of a given commodity be increased indefinitely, the point is reached where utility is nil. Wants are, therefore, *satiabile*, provided a sufficient increase in the number of units of goods is made. A free good, such as water, is present in such abundant quantities that

people satisfy their wants for such goods to the point of satiety. A further swallow of water would have no utility to the individual. The satiability of any given want is approached with each additional increment of goods used to meet that want.

Although any single want taken by itself is satiable, it does not follow that wants in general are satiable. If one want is gratified to the point of satiety, the individual may turn to another want and seek satisfaction in a new direction. When old wants pall, new wants present themselves. Endless variety of want satisfaction surrounds the consumer. The increases of production more and more go to the provision of amusements, luxuries, and indulgences. This fact of an endless possible variety of new wants and new satisfactions is the basis for the doctrine of the *insatiability* of wants. In general, there is no limit to the stimulation and satisfaction of wants. If one want is surfeited, the individual seeks satisfaction by diverting his consumption to a different want. Viewing wants in the aggregate, we may say that they are *indefinitely extensible*.

Wants differ in the degree of their *intensity*. Some desires are stronger than others. People are determined to have certain goods no matter what the sacrifice, but are indifferent to certain other goods if they involve any sacrifice at all.

Wants differ in the *rate* at which diminishing utility takes effect. The want for a house to live in is carried to the point of satiety by the first unit of the commodity. The rate of diminution of utility is practically from an intense quantity of desire for the first unit to a zero quantity of desire for the second. The want for suits of clothes or staple articles of food diminishes more gradually. The rate of diminution of utility must be determined separately for each kind of good.

The last unit of an individual's stock of a good is the unit which he would most willingly go without. It is the least wanted unit of the series. The utility of this least wanted unit is the *marginal utility*. A man buys six oranges. If they cost one penny more, he would buy only five oranges. The sixth orange is the marginal unit, and if the cost were the least bit higher, he would do without it altogether. The marginal buyer is the most reluctant buyer, the one who can barely be persuaded to buy at the ruling price. If the price were any higher, he would buy one less unit of the good. Marginal demand is the demand of the least willing buyer for the least desired unit of his stock. The *marginal* concept is useful in designating the final utility of the last unit of the individual's stock of goods.

Marginal utility *decreases* with each increment in the stock of goods. The larger the supply of a given article in the hands of an individual, the less the importance attached to any single unit of the supply. Every addition to his store diminishes the utility of the least wanted unit.

Total utility is the aggregate utility of an individual's entire stock of a commodity. Total utility *increases* with each additional unit of goods, but at a *diminishing rate* of increase. Twelve oranges will have

more utility than six oranges, but not double the amount of utility. One hundred oranges will have more utility than twelve, but not eight times as much utility.

Scarcity, Utility, and Value.—Many goods which have the greatest importance and service to the individual have little or no economic value in exchange. Air is of the utmost indispensability, but has no value in exchange, whereas cigarettes or chewing gum although low in service to the individual, command a material value in exchange. Water is of far greater use than automobiles, but the former has slight value in exchange in comparison with the latter. A pound of iron is more needed than a pound of diamonds, but the diamonds have the superior value in exchange. These illustrations emphasize the fact that the positive importance of a good to an individual is no measure of its value. The value depends upon a second factor, namely, the number of the units available. The more scarce the supply of the good, the greater the value assigned to each unit. We may, therefore, add the element of *scarcity* to the factor's determining value. Not utility alone, not scarcity alone, but utility plus scarcity determines value. If an article has great usefulness but low exchange value, the reason lies in the abundant supply of the article. If an article has small usefulness but high exchange value, the reason lies in the scarcity of supply of the article. The utility which affects value is the utility of a little more or a little less of the article. Scarcity combined with utility accounts for the valuation of the article.

This combined influence of scarcity and utility is expressed in the concept of marginal utility. The utility of the final or marginal unit of a stock determines the value. If the stock is scarce, the marginal utility of the last unit will be very high. If the stock is plentiful, the marginal utility of the last unit will be low. Marginal utility, therefore, rests upon the double concept of scarcity and utility. Marginal utility determines value. The value of all units in a stock will be the same as the value of the marginal unit.

Price and Value.—In the modern market, instead of stating that a suit of clothes is worth twenty bushels of wheat, we state that a suit of clothes is worth forty dollars, and that with wheat at two dollars a bushel, twenty bushels of wheat are worth as much as one suit of clothes. All commodities that are bought and sold pass through the market at a money price. The money price is the amount of money which we are willing to surrender in order to secure the good. Most of the feeling and thinking regarding values in exchange clusters about prices. Prices provide an easy unit of calculation by which any good can be compared in value with any other good. Price indicates or measures value.

For one unit of bread, a hungry man might be willing to pay a dollar. For a second unit of bread, he might be willing to pay only twenty cents. For a third unit of bread, he might be willing to pay only ten cents. The third or marginal loaf would, however, determine

the price paid for all three units of bread. If three units were available, instead of paying a dollar for the first and ten cents for the last, the consumer would pay the same price of ten cents for all three units. All units would command the same price as the marginal unit. Price is fixed by marginal utility.

To clarify the situation it is necessary to expand the point of view to cover the group of individuals. Previous discussion has referred to the individual as a single and isolated creature. But for a full interpretation of the problem, it is necessary to extend our concept to the aggregate of individuals in the market. The bakery has a mass of individual customers, and sells a supply of hundreds of loaves of bread. The hungry man who walks into the bakery views not three loaves of bread but hundreds of loaves. The marginal utility which fixes the price is the sum of the marginal utilities of all the buyers of bread. Scores of customers and hundreds of loaves of bread result in marginal utility at a point where ten cents a loaf will dispose of all the bread. The situation must be viewed in the aggregate. The functioning of marginal utility in fixing price must be viewed collectively.

Disutility Balancing Utility.—Opposite utility is disutility. Disutility is the discomfort associated with the efforts of production. In its original forms, value theory assumed that labor was naturally disagreeable. Inherent in human nature was an aversion to work. Consequently, labor was assumed to involve sacrifice and displeasure, and these aspects of labor were termed its disutility. The disutility of labor was contrasted with the utility of consumption.

The word "cost" was used in a psychological sense, as a synonym for disutility. The *cost* of producing a good was said to be the sum of the sacrifices and displeasures necessitated in the effort of production. Psychological cost was a purely subjective matter, consisting of the feelings of fatigue, monotony, and irksomeness attached to labor. Why would men undergo these *costs*? For the sake of the *gains* beyond. The gains were the wants and desires that would be satisfied through the utility produced. On the one hand was utility and gain beckoning labor on to produce, and on the other hand was disutility and cost dissuading labor from production.

This balancing of cost and gain rested upon the hedonistic psychology of pleasure and pain. It assumed that man is animated by two great motives, the pursuit of pleasure and the avoidance of pain. The pursuit of pleasure involved the satisfaction of wants and desires through the utilities in goods. The avoidance of pain involved the shunning of work and the reduction of labor to a minimum. Pleasure, gain, and utility were the great ulterior motives animating production; pain, cost, and disutility were the great repugnancies restricting production. Every man, being rational and foresighted, would naturally seek the utmost of pleasure with the minimum of pain. He would seek to gratify all his wants and desires with the least possible effort. Pleas-

ure-gain versus pain-cost became the great antithesis at the base of value theory.

In refining this doctrine of disutility, the concept of margins was found useful. The first hour of the day's work was comparatively easy and pleasurable. The second hour involved some tedium. The third hour meant the beginning of fatigue. The eighth hour meant sharp pain and displeasure. Further hours intensified the pain. In other words, the disutilities of each successive hour of work increase. This tendency was termed *increasing disutility*, in contrast with the term diminishing utility on the side of utility analysis.

Marginal disutility is the pain-cost of the last hour of labor performed. When labor reaches the point where the pleasure to be had from further products is less than the pain of further labor, work will cease. Marginal utility must be sufficient to stimulate marginal disutility. When the utility of another unit of goods would not compensate for the disutility of another unit of labor, labor halts. Marginal pain-cost will restrict labor just to the point where it is offset by marginal pleasure-gain.

How does marginal disutility influence value? The answer to this query brings us back to the relationship between scarcity and value. Scarcity is governed by the pain-cost of producing goods. Owing to the disagreeableness of labor, men will do as little of it as possible. This reluctance to work restricts the output of goods and makes goods scarce. Scarcity will be proportional to the marginal disutility of producing the last unit of goods.

The chain of causation runs, then, as follows: Marginal disutility regulates scarcity; scarcity determines marginal utility; marginal utility determines value.

Numerous objections have been raised to the theory of disutility, among the principal of which are the following: First, the emphasis upon the minute rational comparison of successive installments of disutilities and utilities grossly overrates the rational factor in human conduct. Second, the emphasis upon pain and pleasure as dominating motives oversimplifies human nature and runs contrary to the main tenets of modern psychology of behavior. Third, the emphasis upon the assumption that labor is naturally and inherently painful contradicts the modern psychological doctrine that productive activity is pleasurable when undertaken under conditions which make labor interesting and creative.

These objections correct many of the psychological implications contained in the old theory. We must concede that the psychology of the pain and pleasure calculus was defective. But after allowing for psychological fallacies here and there, we still find that the basic conclusions of the value theory help us to understand the valuation process. Whatever the psychological background of the case may be, we know that a great deal of modern labor is disagreeable and would not be under-

taken without the hope of ulterior reward. We know, too, that the discomforts of fatigue and monotony increase during the hours of the working day, and that most men prefer to work eight hours instead of ten or twelve. These are the major objective facts underlying disutility principles. Our conclusion, therefore, is that the idea of the balancing of marginal disutility against marginal utility, although wrong in some of its psychological implications, does nevertheless express an important set of facts and provide a logical analysis of these facts from the standpoint of value. We may reject the false psychological implications and still hold the core of fact which is at the center of the analysis. For certain purposes and within limits, this form of value analysis is useful and desirable.

Value and Inequalities of Purchasing Power.—Let us assume that two men enter a store to buy shoes. Each man has a definite desire or want for shoes. The utility of a pair of shoes is effective for the two prospective buyers. Likewise the rate of diminishing utility for successive pairs is operative, and the point of marginal utility is approached. In all these respects, the two men are assumed to be precisely equal. But in one respect they differ, namely, in respect to their income or purchasing power. When the clerk names a price of ten dollars, the rich spender nonchalantly pays the amount, but the poor spender turns sadly away, and decides that he must surrender hope of obtaining the shoes, because their price is too high. The value problem is as follows: Why, although the importance of the goods is urgent, does one man buy and the other not buy? Obviously difference in size of income raises questions of real importance to value theory. The trivial fancies of the rich buyer may result in purchase, whereas the urgent wants of the poor buyer may not result in purchase. Value theory must include the influence of inequality of money purchasing power in its analysis.

The amount of money possessed by the spender reflects the disutility or sacrifice to him of parting with the money. To the laborer a dollar represents the sacrifice contained in the hours of toil. To an idle recipient of a fixed income from investments, a dollar represents slight sacrifice and can be parted with light-heartedly. How the dollar is obtained reflects the pain-cost side of the situation. How the dollar is spent reflects the pleasure-gain side of the situation. The well-to-do buyer tosses his dollar upon the counter with little sense of sacrifice, but the low-income buyer parts with his dollar under the realization that his dollar represents the sweat and toil of the workshop. It is the same dollar in purchasing power, but the symbol of far different backgrounds of sacrifice in its accumulation.

The effective demand on the market is a compound, then, of marginal utility plus purchasing power. Market value is the resultant of differences in size of incomes as well as of the marginal utility of goods. The permutations and combinations of these factors are endless. Consider the various types of customers which jostle and elbow each other at the same counter. Mr. A. has intense want for a coat but only a

few dollars in his pocket. Mr. B. has slight want for a coat but plentiful dollars in his pocket. Mr. B. buys and Mr. A. goes without. Whims and vanities of negligible utility may be indulged freely because some people have the money to spend, but stern necessities of intense utility may be stinted acutely because some people do not have the money to spend. Scarcity of spending power is just as influential as scarcity of goods. Scarcity of money income and the sacrifice which attaches thereto are set over against scarcity of goods and the utility which attaches thereto.

Opportunity Cost.—A man who decides to buy a house may have to forego the buying of a new automobile. One who decides to join an expensive club may have to stint himself on furnishing his home. If one goes on a camping trip, he surrenders the pleasure of going to the theater. At the margin of choice, the individual decides to give up the enjoyment of one good in order to obtain the enjoyment of another. To indulge in one luxury costs the individual the opportunity to indulge in another. The opportunity cost is the sacrifice of foregoing some alternative utility.

A worker faces an opportunity cost in apportioning his time between work and leisure. If he works a short day, he limits his money income and therefore his ability to buy various goods which would bring enjoyment. But he gains the enjoyment that comes from recreation and diversion. The decision to work another hour more or less entails the balancing of an hour's extra leisure against an hour's extra income. The election of one alternative costs him the opportunity of the other. The displaced alternative is a joy foregone, a pleasure sacrificed.

Cost may be considered ultimately as the most urgent excluded desire. Cost of labor is, in this sense, the sacrifice of the most attractive alternative.

Opportunity cost helps to explain where the points of marginal utility and disutility fall. The marginal utility of any enjoyment depends upon the lure of the most enticing competing enjoyment. What we give up influences our choices in what we consume. The marginal disutility of one kind of labor must be compared with the substitute use of his time which the laborer could possibly make. The man who has a scientific curiosity but becomes a profiteer suffers from self-denial of the kind of work he would particularly like to do. The displaced activity affects the point of marginal utility in the ruling activity. The marginal points are influenced by the most alluring possible alternatives. If the alternatives were not so tempting, the actual choices would be easier to arrive at. The restraints put upon every want by the allurements in some other direction curb the force of wants. Extreme joy in satisfying a want is stifled by the pain of foregoing a highly attractive alternate want. Opportunity cost limits and restricts the enjoyment of goods actually chosen. The joy of everything we have is subdued by the grief over everything we have not.

Margin of Consumption.—Every one has to choose between many possibilities of expenditure. Every one faces the question whether to buy a little more or a little less of a given good. The individual will not be likely to buy an additional unit of one good if a unit of another good, price considered, will have greater utility. If he spends too much for one line of goods, he will suffer keenly the sacrifice of goods which would have yielded greater utility. The consumer will tend to carry each line of expenditure to the point where marginal utility in any line is equal to marginal utility in any other line. He will tend to buy additional units of each good up to the point where each dollar, no matter for what spent, will bring uniform maximum satisfaction. Each time a dollar is spent he will consider whether the additional unit of goods so bought will bring as much satisfaction as a unit of some other kind of goods would bring. Each expenditure means a balancing of the loss of utility by foregoing one good against the gain of utility from enjoying another good.

When the marginal utilities in all lines of consumption are carried to the point of uniformity, the consumer is said to be at the *margin of consumption*. At this level, marginal utilities are substantially the same all along the line, and the individual's consumption is in equilibrium. No alternative way of spending a dollar would give as much satisfaction as the actual way. No substitute pleasure would be as great as the selected pleasure. Maximum satisfaction is obtained because each unit of goods bought brings greater gain than any other unit of goods could bring. Of course, a perfect equilibrium at the margin of consumption is purely hypothetical, but as an abstract concept it has the advantage of describing the goal or objective toward which consumption tends.

Complementary Goods.—Certain goods must be accompanied by related goods before they can be consumed. For instance, an automobile requires gasoline, a furnace requires coal, a pipe requires tobacco, a rifle requires explosives. The members of each group of such goods are said to be complementary goods. When several articles are mutually indispensable for the enjoyment of any one article, they lead to a complementary process of valuation. The quantity of any one good desired will correspond with the quantity of the other complementary goods to be consumed. For instance, the motorist determines his need for gasoline by the size of his automobile and the mileage covered. In building a house, the need for individual materials such as nails, cement, lumber, and brick, is complementary. They must be used jointly if they are to be used at all. The utility of each good depends upon the utility of the others in the group. Complementary utility is a joint product.

If the individual decides to use more units of one good in a complementary group, his decision automatically involves a proportional increase of consumption of all other goods in the same group. For instance, if a man chooses to spend more time hunting, he must forthwith

use more ammunition, more firearms, more sports clothing, more accessories. Goods come in groups. We must buy pairs of shoes or gloves and suites of furniture. We must balance the menu with soups, entrées, and desserts. We must buy all the parts to an automobile, and all the conveniences in a modern home. If we choose one, we choose all in the group. Complementary value results from this joint consumption of related goods in such form that equal or corresponding quantities of all members of the group must be consumed at the same time.

Derived Value.—Are finished goods high in price because raw materials are high, or are raw materials high because the finished goods will sell for high prices? Are automobiles expensive because steel costs much, or does steel cost much because automobiles command high prices? Is clothing high because wool and cotton are high, or are wool and cotton high because people are willing to spend freely for clothing?

The answer of economics is that the finished goods determine the price of the raw materials and of the machinery used in their production. Steel is high because automobiles are high and wool and cotton are high because clothing is high. That this is true is readily seen from the utility analysis. Steel, wool, cotton, and the like have no utility as such. They satisfy no want in their raw state. Utility attaches first to finished consumers' goods, and is passed down to the raw materials necessary to production of the finished goods. The utility of the raw materials and of the machinery is purely incidental to the utility of their finished products. The unfinished goods derive their utility from the utility of the finished goods. Producers' goods derive their utility from the utility of consumers' goods. Capital goods derive their utility from the utility of retail products. This dependence of raw material values upon finished goods' values is the basis for the economic principle of *derived utility*.

Derived utility often is confusing because of the fact that the raw materials are priced first in order of time, yet are said to derive their price from the subsequent prices of their finished products. How can values which come after, govern values which come first? The answer lies in the anticipation by producers of what consumers will be willing to pay. The flour manufacturer pays a price for wheat based upon the price which he expects to get from the baker. The baker in turn pays a price for flour based upon the price which he expects to get for bread. Prospective prices to be paid for consumers' goods govern the values of raw materials long before the materials have been converted by manufacture and placed in consumable form. This process of depending upon anticipations and prospects of consumers' prices involves a great deal of guess work and forecasting by business men. If they overrate the willingness of consumers to spend money, they suffer from oversupply of goods on the market and a slump of prices. If they underrate the willingness of the consumers to spend money, they suffer from a dearth of goods on the market and a skyrocketing of prices. Only because the finished article can be sold at a high price can the crude

material or the capital used in its production be sold at a high price. Producers' values are derived from consumers' values.

The starting point of utilities is the mind of consumers. The fountain and source of value is the marginal utility of the good to the consumer. All earlier utilities in the production process are derived from the subsequent utilities assessed by consumers. All incompleeted goods derive their utilities from the prospective utilities of completed goods.

Supply and Demand.—The preceding analysis has not specifically named supply and demand as the subject of its treatment, but in fact the concepts used have been simply a refinement of the two basic notions of supply and demand. On the demand side, we have dealt with utility. On the supply side, we have dealt with scarcity. Utility analysis is simply a means of reducing to minute parts the general concept of demand. Scarcity has been emphasized as showing the influence of supply upon value.

In the following chapter, supply and demand will be analyzed directly. In thus treating the effect of supply and demand upon value and price, we shall not be departing from the concepts presented in this chapter. We shall be simply elaborating and rounding out the principles of value along lines already started.

The present chapter has attempted to state the utility analysis clearly and accurately. Little attempt has been made to criticize utility theory. Not that much criticism could not be hurled at the utility concepts, but that little would be gained in this volume by intricate disputation. We have been content to state the utility logic for what it is worth. Some authorities think it is worth nothing; others think it is worth everything. The present author is writing on the assumption that neither of these views is sound. The assumption here is that the utility logic is useful for the purpose of providing an analysis of the logical process of valuation. For this limited purpose, utility theory is indispensable. For many further purposes, it is inadequate. Consequently later chapters will attempt to supplement utility theory by pecuniary theory calculated to supply what utility theory lacks. This brief comment is necessary because of the contentious atmosphere surrounding any mention of marginal utility in recent years.

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CHAPTER IX

SUPPLY AND DEMAND

The Meaning of Supply and Demand.—*Supply is the quantity of a good that will definitely be sold at a given price. Demand is the quantity of a good that will definitely be purchased at a given price.*

Both supply and demand are defined relative to a given price. At a high price, supply will tend to be greater and demand less. Supply does not include all units of a good which are in existence, but only such units as will actually be disposed of at a given price. Demand does not include the whole purchasing power of consumers but only such part of it as will actually be used to buy goods at a given price. Supply and demand are not absolute terms. They are purely relative to a given price.

Consequently, we may conceive of as many different supplies and demands as there are different possible grades of prices. A certain kind of good may be offered at any one of countless possible price levels, varying from extremely low to extremely high. But no matter which of these be taken as the actual market price, the supply factor will be the amount actually offered for sale at that price, and the demand factor will be the amount actually bought at that price. With each different gradation of price, there will come a new quantity of supply and demand.

Both terms are used to designate an *effective* force. Demand is not a vain longing for goods, but decision to buy coupled with the purchasing power necessary for buying. Supply is not a theoretical amount, but the amount that will be made effective in the market. The actual forces must be differentiated from merely potential forces. Potential demand is the demand that could be tapped by changing prices, and potential supply is the supply that could be reached by changing prices. But in common economic usage, the terms are used in the effective sense. Active desire plus ability to pay gives an act of purchase, which is *effective demand*. Active offering for sale plus willingness to accept a certain price gives an act of sale, which is *effective supply*.

The Laws of Supply and Demand.—It is very common for popular authorities to attempt an explanation of almost every baffling problem by a vague and mysterious reference to supply and demand. The phrase serves as a kind of blanket explanation to cover confusion and perplexity. When a business situation defies concrete and clear explanation, a loose resort to "the fundamental law of supply and demand" is

a common solution of the problem. From the economist's standpoint, it is an explanation which does not explain.

The general laws of supply and demand are a platitude to the man on the street. These laws may be stated from two different angles: first, from the angle of the effect of supply and demand upon price; second, from the angle of the effect of price upon supply and demand. From the first standpoint, the greater the supply the less the price of a good, and the greater the demand, the more the price. Price varies inversely with supply and directly with demand. From the second standpoint, if the price be raised, supply will increase and demand will fall off. If the price be lowered, demand will increase and supply will fall off. These general truisms are familiar to every schoolboy. If that is all there is to the laws of supply and demand, no further explanation is necessary.

But further thought discloses that these truisms are merely the statement of a problem, not the solution of one. The problem stated relates to the variations which occur in the three factors,—demand, supply and price. The laws of supply and demand refer to fluctuations in all three of these factors. The terms of statement are: The *greater* one factor, the *less* some other factor; the *higher* this, the *lower* that; the *more* the price, the *more* the supply and the *less* the demand. The interrelations of all these factors of increase and decrease are exceedingly complex. It is these complex interrelations of variable factors which constitute the problem of supply and demand.

In solution of this problem, economics endeavors to answer such questions as the following: What governs the fluctuations in demand? What are the main types of variations in supply? What is the normal center around which market prices fluctuate? Instead of taking the major fluctuations for granted, we take them as the starting point for inquiry and explanation. We seek to discover the main types of changes in supply, demand, and prices, and the causes of such changes.

Competitive Conditions Assumed.—In analysis of these questions, free and all-sided competition is assumed. That is, it is assumed that each seller is seeking to secure the highest possible prices, and will alertly and intelligently pursue all feasible methods toward that end. And it is assumed that each buyer is seeking to secure the maximum amount of goods for the lowest possible prices, and will alertly and intelligently follow that course to the desired goal. These assumptions obviously oversimplify somewhat the actual conditions of the market place. Restraint of trade and lessening of competition prevail in certain degrees everywhere. Pure competition is hard to find. But for purposes of analysis, we may abstract from this situation the isolated fact of pure competition. Of course, we are dealing then with an hypothetical situation. But the use of hypothetical conditions need not limit the worth of the analysis. It is the process of all science to isolate from a mass situation the single element which requires analysis. We are following the technique of all science when we isolate from the

mass phenomena of the market the single factor of free and all-sided competition. By dealing with conditions of supply and demand in their simplest form, and under ideal conditions of perfect competition, we are able to penetrate more clearly the laws which govern the relations between supply, demand, and price.

These simplified conditions are preliminary in our study. Following an analysis based upon these simplified assumptions, we may introduce such qualifications as are necessary to fit the actual world of imperfect competition. From an explanation of the simplest competitive conditions, we may proceed to an explanation of the complex conditions of imperfect competition and of monopoly found in the actual market.

The Variations in Demand.—Wide differences appear in the demands of various buyers. The demand for a new pair of shoes by a man who already has a half dozen pairs and by a man whose one and only pair is worn out, is a differing demand. The millionaire and the day laborer have differing degrees of demand for food, clothing and everything else. There are buyers for whom every purchase means close pinching, stinting, and painful stretching of every penny to the limit of purchasing power; and there are other buyers for whom purchases of the same goods are easy, involve little or no stinting, and are simply offhand buyings with a real lack of interest in the price. The same price may be offered by two buyers, one of whom has a most urgent demand for the goods, the other of whom could get along without the goods as well as not. Demand is not a uniform, unvarying thing,—the same for everybody, everywhere. So the question arises, which kind of demand is the paramount force in settling prices? Is it the demand of the buyer who can barely be persuaded to buy the article? Or is it the demand of the buyer who can buy with easy indifference to price?

The answer is that it is the demand of the marginal buyer, the man who can just barely afford to buy at the stated price, which tends to establish the price of the good. The best point of view from which to grasp the significance of marginal demand is that of the seller himself as he maps out a selling plan. His mind works through some such process as this: "I want to place 100,000 pieces of this commodity on the market. Suppose I put the price at one dollar per piece. I am afraid that some people will find that price too high. I probably would not sell more than 50,000 pieces. There must be another 50,000 people who would like to buy this article, but who will say to themselves, 'Well, we can't afford to pay a dollar for that article. We should like to buy it but *at that price* we can't afford it. Of course, it's all right for those who have the money and who want to pay the price, but not for us.' " Then the seller who is mapping out his selling campaign will reflect further: "I will offer the article at ninety cents. Will that draw an added 50,000 buyers? I am afraid not. It will draw perhaps 30,000 buyers additional, but it will not sell the full 100,000 pieces. I must catch the eye of that lower 20,000 in order to sell the full quantity. That

group at the bottom of the scale is the hard group to persuade to buy. If I reduce the price to eighty cents, I believe they will be tempted to part with their money. I will therefore offer the full 100,000 at eighty cents per piece."

The marginal buyer is the eighty-cent buyer. Many buyers would gladly have paid more rather than go without the article. But they would not have to pay more, because the price for all was set by the marginal buyers. Thousands of buyers would pay more than they have to, probably without complaint, but other thousands would not buy at all if the price were any higher. So the most reluctant buyer, the most unwilling consumer, the man of marginal demand, sets the price level for the goods. He is the man at the end of the line, the man who can barely persuade himself to buy, even at the price calculated to catch him. He is the man for whom the question, to buy or not to buy, is a poser. He is tottering on the brink of doubt and skepticism. The price for all has to be set at a level which will catch this marginal group.

Three factors influence the point where marginal demand will fall. First, the intensity of the desire will affect the willingness to pay a certain price for the good. The more intense the desire, other things being equal, the higher the price at which goods can be sold. Second, the rate of diminishing utility will affect the willingness to pay the price. When the volume of sales depends upon selling more than one unit of a good to the same buyer, the diminishing utility of successive units is important. Third, the size of income or amount of purchasing power in the hands of the buyer will affect the willingness to pay a certain price for a good. Even though desire may be intense, if there is no purchasing power available, the individual cannot buy. Marginal demand is a compound of three things: intensity of want, diminishing utility, size of purchasing power.

We may divide all buyers into three classes, with respect to a given good at a given price: those above the margin, those at the margin, and those below the margin. Those above the margin could well afford to pay more. But they do not have to pay more because, if prices were raised, the marginal fringe of buyers would drop out of the market entirely and the sellers would have a large stock of goods left on their hands unsold. In order to market a certain supply of goods, it is necessary to put prices down to that point where the marginal buyers will be sufficient in number to take the goods off the market. Prices must bow to the whims of the most reluctant buyers. Finally, those below the margin may have wishes and desires for the goods, but these are not intense enough to lead them to buy. If prices were lower, they would buy, and by so buying they would become the new marginal buyers.

Marginal demand is purely relative to a given price. Change the price, and a new grade of marginal buyers appears. Those formerly at the margin are now above or below the margin, as the case may be.

The supra-marginal buyers could afford to pay more, but do not have to do so. They, therefore, obtain a *consumer's surplus*. The con-

sumer's surplus is the difference between what he has to pay and what he would have been willing to pay rather than go without the goods. If one can buy a pair of shoes for five dollars which he would if necessary have paid ten dollars for, he is receiving a surplus of utility measured by the difference between the two prices. The excess of the price which one would pay rather than go without a good, over the price which he actually is required to pay, represents surplus satisfaction to the buyer. This surplus satisfaction is what the buyer often has in mind when he states that he obtained an article for less than it was worth. He means that the article was of such utility to him that he would if necessary have paid five dollars for it, but that in fact he had to pay only three dollars. What the article is worth to him is the utility or value in use of a given number of units of the good. But what the article is worth to marginal buyers who would not pay more than three dollars for it sets the price for all buyers. The consumers who are above the margin receive a surplus of utility and satisfaction.

The Assumption of One Price.—Where forces of demand and supply freely operate under competition, the same good will command a uniform price for each unit and to all buyers. *There cannot be two prices for the same good in the same market at the same time.* The market may be local or international. No matter what the scope of the market, the tendency toward a uniform price for the same article is present. If one unit of a good were priced higher than another, that unit would be passed by in favor of the low-priced unit. Two merchants in competition with each other must sell at substantially the same prices for all units of the same goods. Else the low-priced merchant will take all trade away from his neighbor. But while he is taking trade from his neighbor, his low prices may not cover his own costs, and he will run himself into bankruptcy. The law of one price rests firmly upon the competition of buyers and sellers for goods on the market. One market, one price, is the law of uniformity.

The meticulous student must not expect that the law of one price applies down to the minutest fraction of a dollar or a cent. It is simply a law which states a tendency, and a tendency which is substantially true in the long run. On any day, the individual who wishes to shop around and to compare prices and values, will discover better bargains in some stores than in others. But these discrepancies apparent to the shopper are kept within narrow limits. Wide discrepancies will lead buyers to avoid high-priced stores and to patronize low-priced stores. The glaring discrepancies which appear from time to time tend to be wiped out. Always the movement is in the direction of one price for all units of the same commodity in the one market.

No matter whether the buyer be marginal, or above or below the margin, in his demand, and no matter whether the seller paid more or less to obtain the goods, all buyers will be able to obtain the goods at substantially the same price in the same market. Price uniformity is a strong and definite influence in the pricing process.

The Elasticity of Demand.—If a lowering of price has the effect of materially increasing the volume of sales of a commodity, demand for that commodity is said to be *elastic*. An increase in supply can be marketed with only slight price reductions where demand is elastic. New purchasers will appear on the slender temptation of a small price concession. Where the contrary situation prevails, and sharp price cutting is necessary in order to market an increased supply, demand is said to be *inelastic*. New purchasers will appear only on the strong inducement of large price concession. The rate at which consumption responds to changes in prices represents the elasticity or inelasticity of demand.

In certain cases the degree of elasticity is such that a decline in price is offset by a corresponding increase in the number of units sold, with the result that the total value of sales remains constant. Where price multiplied by quantity remains constant, no matter what the quantity offered or the price charged, the *elasticity of demand is said to be unity*. If, with declining price, quantity of units sold increases rapidly, with the result that price times quantity gives a greater product than before, demand is elastic. If, with declining price, the quantity of units sold increases slowly, with the result that price times quantity gives a smaller product than before, demand is inelastic. The base of comparison is demand as unity, and the data to be compared are total sales as measured by the product of price times quantity.

In general, necessities have a relatively inelastic demand, whereas luxuries have a relatively elastic demand. The quantity of bread and salt consumed remains fairly constant in spite of the ups and downs of prices, whereas the quantity of sugar and silk consumed fluctuates widely in response to price changes. Many articles which, although not absolute necessities, have nevertheless won a fixed place for themselves in social habit and custom are relatively inelastic in demand. Many of the basic comforts of modern life are so firmly established in our institutional standards that people are determined to buy a fairly constant amount of them even though prices change materially. Standard comforts are practically in the same category as necessities. Both have an inelastic demand. As incomes of various classes increase, more and more they come to consider luxuries as comfort necessities and therefore to make their demand for such articles inelastic. The quantity demanded in response to price changes undergoes evolution and change. Elasticity is in process of alteration. It is not the same yesterday, today, and forever, but is modified in relation to progress in standards of living and size of income. The direction of evolution is toward bringing more and more of the luxuries within the scope of necessities, and therefore toward making demand for these commodities more and more inelastic.

The Variations in Supply.—Just as on the side of demand, it was the marginal buyer who set the price for all buyers, so on the side of supply, it is the marginal producer who sets the price for all sellers.

The marginal producer is the least efficient producer. He it is

whose expenses soar highest, and whose total costs can barely be covered by total income received. To understand the significance of marginal expense of production, it is necessary at the outset to recognize the inequalities of expense which prevail among different producers. The widest differences exist between low-cost and high-cost producers. A concern which is unfavorably located, which has to buy raw materials in small quantities, which has inefficient management, which has constant labor troubles and a wide variety of other difficulties, suffers from a high expense of production. Another concern in the same branch of industry enjoys a low cost of production. This gives rise to the question: Which cost of production, the high or the low, establishes the standard for prices? Do the expensive plants, the poorly located plants, the poorly managed plants set the price standards? Or are prices set by the efficient, prosperous, brilliantly managed plants? The answer is that the high cost plants tend to set the level below which prices must not fall. The plants with highest expenses would have to go out of business if prices were to fall below their expense of doing business. They would lose money from prices inadequate to cover expenses and would of necessity close down.

But society cannot allow the expensive plants to close down because they are necessary in order to provide an adequate total supply. The plants of low expense cannot supply the entire need and demand of society. The plants of high production cost must be continued in operation if the total supply is to be sufficient.

The high expense of the latter group of concerns is known as the marginal expense. Marginal producers are those which are just on the margin between life and death. Their expenses are so high that they can barely keep going at the price prevailing. They are the producers who are just able to make ends meet and no more. They can, so to speak, scarcely keep their heads above water. But because what they do produce is indispensable, because society cannot do without it, these marginal producers have to be paid prices high enough to meet their high costs. Hence it comes about that the high level becomes the general level for the market. Marginal expense, that is, the expense to the producer who can barely make price cover cost, sets the minimum below which prices must not fall for everybody.

If producer A can put an article on the market at 75 cents but producer B cannot put it on the market for less than \$1.00, then the price in the market for the article will be \$1.00 for both producers. Producer A could afford to sell for less, but he does not have to because B, the marginal high-cost producer, sets the price for all. The producer with low expenses finds himself making royal profits, through the necessity on the part of society of keeping the costly producers alive in order to make production adequate to meet society's needs. Producer A in this case would be said to receive a *producer's surplus*. The difference between the price at which he could afford to sell and the price at which he is able to sell, is the measure of his surplus gain.

The consumer is obliged to pay a high price for the whole product because the producers of a part of the product are inefficient. Price is fitted not to the units which are produced most efficiently but to the units produced most inefficiently. The price necessary to sustain the least efficient fraction of producers is the price for all. Consequently, on the side of supply, price is set by the inequalities of efficiency. The supply price is the price high enough to keep the most inefficient producers alive. Inefficiency sets the supply price, and efficiency receives a reward in the form of producer's surplus or extra profit.

Although it is clear that marginal expense fixes the minimum below which price will not fall, nevertheless it remains to explain variations in the point at which marginal expense falls. If supply increases, will the cost per unit of product increase, or decrease, or remain constant. According as cost varies in one or another of these ways, margins will vary and prices will vary. The relation of supply to price must be traced through the cost of producing the supply. Not supply as an absolute amount, but supply at a given cost of production, is the price-determining factor. It is important, therefore, to consider the main classes of variations in cost.

Variable Supply at Increasing Cost.—A certain amount of coal can be produced in the best mines at very low cost per ton. But the output of such mines is inadequate to meet the total consumption need. Inferior mines must be worked, although their operation results in rising costs per ton of coal. The greater the amount of coal needed for consumption, the greater the per ton expense of mining. The principle of value in such a case is that *price tends to equal the cost per unit of those producers whose costs have increased most.*

Mines A, B, C, and D can produce coal at \$2 per ton. But their output is insufficient to meet the total demand. Consequently mines E and F must be set to work. But these mines cannot produce for less than \$3 per ton. Price must be high enough for all the mines to enable E and F to cover their expenses. E and F are marginal mines, and determine the price for all mines. The marginal mine is the mine whose costs have increased most. Hence, price tends to coincide with the costs of the mine whose expenses have increased most sharply.

Variable Supply at Decreasing Cost.—A certain number of automobiles can be manufactured at a cost of \$2,000 per unit. But a larger number can be manufactured for \$1,500 per unit, and a yet larger number for \$1,000 per unit. If supply increases to meet consumption needs, cost per unit will decrease among the rank and file of manufacturers. But it will not decrease equally for each individual producer. In some plants, quantity production will bring rapid decrease of unit costs; in other plants, it will bring very slow decrease of unit costs. The principle of value in such a case is that *price tends to equal the costs of those concerns whose costs have decreased least.*

If manufacturers A, B, C, and D have decreased costs only to \$1,500, but E and F have decreased to \$1,000, the price for all will tend to be

\$1,500. This will remain true unless and until additional low-cost producers enter the field, and low-cost plants become able to turn out a sufficient product for the whole of consumption. That is, A, B, C, and D, seeing that E and F are taking orders away from them by cutting prices will feel the necessity of introducing efficiency, reducing costs, and reaching a basis where they can compete. But this competition rests upon the assumption that the low-cost concerns multiply in number and productive capacity. Until they do so, the costs which have decreased least will tend to set the minimum price scale for all plants. These costs will be at the margin, and will be the minimum below which price must not fall if society is to obtain their product and continue them in operation. *In the course of time low-cost producers tend to drive high-cost producers out of the business.*

Variable Supply at Constant Cost.—It is of relatively rare occurrence that per unit cost remains constant, when supply is either increased or decreased. A, B, C, and D manufacture hats at a common and uniform cost per hat. A new demand for hats makes itself felt, and E and D enter the field to supply the additional demand. Their cost per hat remains the same as the cost of all the other concerns. Unvarying expense per unit, no matter in which direction supply may vary, presents a value problem which seldom occurs in perfect form. A condition approaching unvarying expense does, however, appear frequently in certain industries during a certain stage of their growth. The law of value in this class of cases is *that price tends to equal cost*. That is constant cost is accompanied by a tendency toward constant price. If new demand appears, new supply also appears to meet it. The new supply, according to the law of diminishing utility, drives down the marginal utility of the last units of supply until they coincide with cost. That is, marginal utility is kept constant by the device of a freely varying supply of units of the good.

On the cost side, marginal cost is kept constant. All concerns are marginal concerns, and hence all costs are constant marginal costs. With marginal cost constant, and marginal utility constant, price likewise tends to be constant at the level of cost.

Variable Supply and Joint Cost.—Many articles are produced under conditions of joint cost. The steer furnishes not only meat, but hides, fertilizer, glue, lard, and many other products. Petroleum furnishes kerosene, gasoline, naphtha, paraffine, lubricating oils, and numerous other articles. Cotton furnishes not only cloth, but cotton seed, oils, meals, and other by-products. Coal furnishes not only fuel but dyestuffs and other goods. Such articles have a joint cost during all but the later stages of production. When the individual article is separated from the original group, and is put through an independent process of manufacture, it has a separate and independent cost during that advanced stage of production. The principle of value in articles of joint cost has two aspects: first, *the price of each individual product will tend to fall to that point where marginal demand will just absorb the*

supply offered; second, the total money value of the whole group of articles will tend to equal the total cost of production in the marginal concern.

It is useful to consider the effect upon price of an increase in demand for one article in the group, demand for the other members of the group remaining constant. Demand for the one article can be satisfied only by increasing the supply of the whole group. Thus, a demand for beef, while increasing the supply of beef, will also increase the supply of hides and of by-products in general. Since demand for these by-products has not risen, the increased supply will tend to lower the price which will serve to take the supply off the market. Thus, an increased demand for one member of a joint product, demand for the other members remaining the same, will tend to lower the price of the other members of the group. Supply is joint and moves as a unit, whereas demand is single and moves separately with respect to each individual article. Supply is joint, demand is single. Total price must equal joint cost, but single price will equal that marginal demand necessary to absorb the quantity of each single article thrown on the market.

Fixed Supply.—Of some commodities it is true that they are non-replaceable. The supply in existence is the only supply that can be made available. Supply can neither be increased nor decreased. The most pertinent illustrations are masterpieces of art, rare jewels, antique furnishings. The supply is absolutely limited. The principle of value is that *price will tend to fall to that point where marginal demand will exactly correspond with supply*, and will absorb the quantity offered.

This type of case is the opposite of the types previously considered. There, supply was variable, and the variations in supply were accompanied by variations in cost. Here, supply is assumed to be without variation. It is definitely fixed. The cost of producing the article does not affect its price. No matter whether the cost was high or low, the price will be the same. The number of units in existence and the utility of the last or marginal unit will determine the price, regardless of cost.

A different form of illustration of fixed supply is any commodity whose supply cannot be changed over short periods of time. When a wheat crop is harvested, the supply is fixed until the next harvest arrives. When a manufactured product is placed upon the market, it constitutes a temporary fixed supply. Some time would be required to add to the supply by new manufacture. During the interval, the supply would be fixed. Price, in its short-run fluctuations, tends to be such that all units of the supply will be moved into the hands of buyers. That is to say, the price will tend to be such that marginal demand will effect sufficient purchases to dispose of the supply. Short-run fixed supply is accompanied by short-run price fluctuations suited to move the whole product into buyers' hands. What marginal buyers are willing to pay for the last units of the stock will be the dominating factor.

Overhead Costs.—The costs of an enterprise may be broken up into two major classifications: operating costs and overhead costs.

Operating costs are illustrated by the labor that is employed while the factory is busy or the power hired to run machinery. Their chief characteristic is that they vary approximately as output varies. If output increases, operating costs per unit of product increase proportionately. Overhead costs are illustrated by interest on fixed investment, permanent managerial salaries, depreciation, rent, insurance, and taxes. Their chief characteristic is that they do not vary as output varies. An increase or decrease in output does not involve a proportionate increase or decrease in these costs. They are fixed charges on the business, and must be met whether the business operates or not. If output doubles, these fixed charges will remain substantially the same. If output is cut in half, the fixed charges will go on undiminished.

For economical production, it is of utmost importance that a plant or an enterprise reduce the overhead cost per unit of output by full-time operation of the plant. Let us assume that in a certain shoe factory, which has a capacity for making 2,000,000 pairs annually, the total overhead burden is \$2,000,000. If the factory operates to full capacity throughout the year, the overhead cost per pair of shoes will be \$1.00. But suppose the factory operates at only half capacity. The output is then 1,000,000 pairs of shoes for the year, but this output must stand the same overhead burden as before, namely, \$2,000,000. The overhead cost per pair is then \$2.00. Operation at half capacity has doubled the overhead cost per unit of product. This cost is an increase in per unit expense of production. The only true method of cutting unit cost is full-time operation of plant. Every strategy possible for the elimination of idleness contributes to the reduction of unit costs. The overhead burden is inseparably bound up with idleness. A common accounting phrase is "idle overhead." Unused capacity is the worst foe of low unit costs. Cheapened production can mean only one thing, namely, full-time production.

Railroads recognize the importance of overhead costs by their methods of establishing rates. Under given conditions as to size of plant and efficiency of management, approximately two-thirds of a railroad's expenses are a fixed overhead burden. Whether the railroad carries much or little freight, two-thirds of expenses run on just the same.¹ In order to stimulate as nearly as possible full time use of roadbed and equipment, railroads adapt their freight rates to "what the traffic will bear." Since a railroad is running through a given district anyway, it must seek to carry a full load as often as possible. In order to secure a full load, rates must be adjusted to induce shippers to send a large volume of goods. The making of rate schedules is calculated to persuade shippers to send large enough quantities of goods to make possible a full use of railway equipment. It costs the line very little more to haul a full load than to haul a half load. "What the traffic will bear" is such rates on each class of goods as will call forth large shipments and leave as little idle shipping space as possible.

¹ Lewis H. Haney, *The Business of Railway Transportation*, p. 175.

Central power stations have dealt with overhead costs by making power rates lower during the off-peak hours of the day. Cut rates during the dull hours of the days are calculated to stimulate more nearly full time use of power, and to reduce the overhead burden per unit of power supplied. Night rates on telegraph and telephone service are intended to stimulate use of equipment during dull hours of the day. In anthracite coal production, advertising and education of consumers led to a reduction in seasonal buying. The increased steadiness of purchasing resulted in more constant production, and a lightening of the unit overhead cost. The idleness which occurs during the depression stage of a business cycle is a serious problem in overhead costs. If a factory is closed down for several months, the overhead costs continue and must be met. Cyclical idleness has tended to inspire manufacturers to make up for their losses during idleness by scoops at high prices during prosperity.

It is commonly found that a plant will do better to produce at a partial loss than not to produce at all. Manufacturers for export follow the trade practice known as "dumping," with a view to selling product at less than cost prices in order to dispose of it without glutting the market at home. The exported product may command a price too low to cover the total cost, but the manufacturer finds that it is better to make a part of his overhead cost than to make none of it at all.

In the long run, price must be sufficient to cover both operating and overhead costs to marginal concerns. If price is inadequate for this purpose, the old marginal concerns will be forced out of business, and the new concerns at the margin will be more efficient and less expensive producers. *In the short run, however, price may be so low as barely to cover operating expenses.* For temporary periods, business concerns will find it advantageous to operate at prices inadequate to cover all overhead costs. Of course, this partial loss is better than a total loss, but even the partial loss cannot continue indefinitely without wrecking the business.²

Normal Cost and Normal Price.—The word "normal" must be given a particular and strict definition. It is not synonymous with the word "average." It does not signify inevitable natural law. It does signify a *tendency*. It indicates a direction in which value forces may be expected to move.

² J. M. Clark, in *The Economics of Overhead Costs*, urges a policy of control of demand and supply in the business cycle by manipulation of the ratio between price and variable cost. His policy is described as follows, "If everybody stood ready to cut down to the absolute minimum of 'variable cost,' and if everybody shared such cuts as were made, *nobody would have to cut that low or anything near it*, in order to restore demand to a reasonable normal level. For the chief cause of falling-off in demand lies in the fact that any unemployment reduces people's purchasing power and so returns on itself in a vicious circle creating more unemployment. If every one were determined to sacrifice earnings whenever necessary to maintain output, this vicious circle could be broken and the chief cause of shrinkage of demand would disappear. If every one stood ready to cut prices to the limit to prevent unemployment, no one would have to cut very far." p. 29.

Such a tendency or expectation rests upon certain assumed conditions. Chiefly, these conditions are free and perfect competition, and a long run period of time. *Normal price is the price which will tend to prevail under free competition and in the long run.*

The force of these assumed conditions is significant chiefly because of their effect upon costs of production. Normal costs tend to establish themselves in competitive industry. Normal costs are substantially equal costs. This tendency arises from the desire of every producer to plunge into business at the point where he can hope to make the most gain. Such point will be found wherever, in a given branch of industry, one producer can put goods on the market at a lower cost than some one else. The low-cost producer sells at the same price as his rival with higher costs but makes a large profit simply because his costs are low. Wherever costs are unusually low, new producers enter the field. Their output floods the market and drives out of business those producers who require high prices to cover their exorbitant costs. The high-cost concern is constantly being killed off, and all concerns are tending to a point of common cost and common advantage. Competition tends to wipe out any differences or advantages which appear in any quarter. The tendency to the equalization of costs is slow. It works out only in the long run. Likewise it depends upon competition. The less perfect the competition, the less complete the working out of the tendency.

This tendency has led certain economists to introduce the concept of representative costs and the representative concern. The representative firm may be defined as that firm which is of most economical size, which has average advantages of location, and which is managed with average ability. The bulk of the firms in any branch of industry will concentrate in this representative group. Their costs will be normal for the rank and file of the industry. Year in and year out, their level of costs will be the prevailing level among the majority of firms. In the long run, others may come and others may go, but these run on indefinitely. The tendency toward equalization of costs brings about this core of the industry, this major group, which have normal, representative, long run costs of production.

The long run is sharply contrasted with the short run in this view of normal costs. In the short run, supply is limited by the amount of factories, mines, machines, and other equipment available in a given line of industry. If a sudden increase in demand is felt, the present factory equipment is inadequate. But to build new equipment takes time. To gather in savings and to find people willing to invest capital in additional factories takes time. Consequently, *the supply of productive equipment is fixed over short periods of time.* An increased demand would encounter a shortage of capital wherewith to make finished goods. Hence, it would bring on a shortage of finished goods themselves for the time being. But only for the time being. As soon as capital equipment could be installed, output would expand, supply

of finished goods would increase, and the new demand would be satisfied with the new supply. Long run supply would meet demand at a normal or representative cost basis. *The supply of productive equipment is highly mobile and variable over long periods of time.*

The fundamental factor in long run supply is not consumers' goods, but the productive capacity to turn out those goods. The supply of equipment wherewith to make goods in the long run determines the supply of goods offered on the market. On the supply side, our long run factor is clearly the *supply of the means of production.*

Normal price is that price which in the long run and under free competition approximates the cost of production to representative or marginal firms. Price tends always to fall toward cost. If price for any length of time falls below the cost of representative or marginal concerns, they will be forced out of business. If price for any length of time rises above the cost of representative or marginal concerns, new enterprises will be attracted to the given branch of industry, and the new supply will bring price down to cost again. Normal costs to representative concerns are the center about which actual prices fluctuate. Market prices oscillate around normal prices; market values tend toward normal values.

To summarize the principles of normal price we may state the following propositions: first, normal price rests upon the assumptions of free competition and long run periods of time; second, under these assumed conditions, the inequalities of costs among individual concerns in a given branch of industry tend to be wiped out and to center at a normal or representative level; third, normal price or value tends to fall to the point of representative or normal cost; fourth, market values tend toward normal values, except as they are impeded by imperfect competition, short run periods of time, or other extraordinary forces.

Monopoly Value.—The foregoing considerations assume free competition. This ideal assumption is not fully realized in the real world. Combination in restraint of competition is a commonplace. Monopoly in varying degrees appears at every hand. It is necessary to consider therefore the modification of value theory necessary under conditions of monopoly.

Under perfect monopoly, the producer has complete control of the supply of goods. Monopoly thus affects value primarily from the supply side of the value equation. Monopoly does not control demand, and cannot materially affect value from the demand side of the value equation.

Monopoly price will be that price expected to yield in the long run the maximum monopoly profit. This does not imply that the most profitable price will be the highest price. Profit depends not only upon price but upon quantity of sales. If an excessive price chokes demand and leads to a severe slump in sales, the possibility of profit is cut off. Let us assume that a publishing house has a monopoly of a book. The problem of monopoly price is to determine which price, when allowance

for volume of sales is made, will yield the greatest profit. The monopoly may make such comparisons as the following:

Possible Price	Copies That Will Sell at Given Price	Total Sales at Given Price	Profit per Copy at Given Price	Total Profit at Given Price
\$10.00	1,000	\$10,000.00	\$8.00	\$8,000.00
5.00	3,000	9,000.00	3.00	9,000.00
2.50	25,000	75,000.00	.50	12,500.00

From comparison of the profit due to three possible prices, it is obvious that the highest price does not necessarily lead to the highest profit. A price lower than \$2.50 might increase the total sales somewhat, but not enough to yield as much net profit as the former price. Monopoly price is that price which, considering quantity of sales, will bring the largest profit in the long run.

A perfect monopoly will arbitrarily limit supply to the point where price multiplied by quantity sold will give the greatest gain. Monopoly price is set and maintained by virtue of an artificial regulation of supply. Deliberate restriction of supply is the key to monopoly control. This is the weapon which constitutes monopoly power.

Monopoly price will tend to be highest with goods of inelastic demand. If the price is raised, the demand is steady and firm, and sales will not materially fall off. Practically as many units will be sold as before, and each unit will bring a higher price. On the other hand, monopoly price will tend to be moderate with goods of elastic demand. If the price is raised, demand is highly flexible, and people will go without the goods. Monopoly power is especially baneful in the case of necessities, since these have relatively inelastic demand. No matter how much a monopoly might elevate the prices of salt or bread, people would have to buy these commodities in large volume. Monopoly power is not so injurious in the case of luxuries, since these have an elastic demand. If a monopoly raises luxury prices, sales will slump severely.

In the actual business world, neither perfect competition nor perfect monopoly is commonly found. What is found is imperfect competition and incomplete monopoly. Under these conditions, the competitive laws of value still work themselves out, but against much friction and opposition. Competitive price is still that price which tends to bring the buyer of marginal demand and the seller of marginal cost together. But this tendency is crippled and delayed by countless combinations in restraint of trade, price fixing agreements, and semi-monopolies. In so far as monopoly power becomes established, price will be held above cost by the device of an artificial limitation of supply. Here are two warring tendencies: competition tending to drive price down to cost, monopoly tending to hold price above cost. The resultant of these

antagonistic forces is such compromise as reflects the relative intensity of the two forces in any given case.

The mere fact that varying degrees of monopoly are present should not obscure the fact that underneath, the forces of actual and potential competition are ever present. Likewise, the mere fact that competition in some degree is present should not lead to the fallacy of assuming a perfect state of competition and of expecting quick and sure working out of the laws of competitive value. If competition is tediously slow in driving price down to cost, the cause is to be found in the friction set up by monopoly. If monopoly fails to sustain price at an excessive height, the cause is to be looked for in the unexpected vitality and force of competition. Monopoly is a disturbing factor which protracts and delays the working out of the normal values of competition, and which occasionally frustrates them altogether.

The Evolution of Value Theory.—The analysis of value theory, involving marginal concepts of supply and demand, is in general the orthodox doctrine of the main part of the generation of economists who did most of their creative thinking and writing in the first two decades of the present century. Not all would agree on the details, but they would agree on the substantial trend of the argument. This more or less standard set of principles is the culmination of an evolutionary process of thought. Several previous generations struggled with particular phases of value theory. Through much dispute and discussion, there was gradually built up a balanced and well-rounded system of thought on the subject. Each authority may have been wrong in many respects, but the essence of each writer's contribution had qualities of permanence. These various angles of development have been woven into a harmonious whole of economic theory. We may mention a few of the major phases of this development, although we cannot in present space pretend to give anything like an adequate historical outline of value theory.

In 1776, there appeared a volume from the hand of an English economist, Adam Smith, under the title of *The Wealth of Nations*. Adam Smith's theory of value is indicated in its main outlines by the following extracts from his book:

Labor is the real measure of the exchange value of all commodities. Equal quantities of labor at all times and places may be said to be of equal value to the laborer. Labor, never varying in its own value, is alone the ultimate and real standard by which the value of all commodities can at all times and places be estimated and compared. The proportion between the quantities of labor necessary for acquiring different objects seems to be the only circumstance which can afford any rule for exchanging them for one another.³

In 1817, David Ricardo, an English stockbroker of Jewish extraction, published his economic views under the title of *The Principles of Political Economy*. Although he took exception to certain of Smith's

³ Volume I, Chapter V.

doctrines, he endorsed them in substance, and proceeded to elaborate and refine the earlier views. Ricardo said, "The value of a commodity, or the quantity of any other commodity for which it will exchange, depends on the relative quantity of labor which is necessary for its production. The quantity of labor bestowed on the production of commodities regulates their value." He refers to "labor as the foundation of the value of commodities," and makes "the comparative quantity of labor which is necessary to their production, the rule which determines the respective quantities of goods which will be given in exchange for each other."⁴

Seizing upon an ambiguity in the theories of Smith and Ricardo, a German socialist, Karl Marx, established socialism upon a basic proposition that labor is the sole producer of value. According to the Marxian interpretation, the value of a commodity is the amount of human labor embodied in it. The amount of labor is to be conceived as the labor time socially necessary for the production of the good. "The labor time socially necessary is that required to produce an article under the normal condition of production, and with the average degree of skill and intensity prevalent at the time. Such phrases as "simple, abstract, human labor," "socially necessary labor," and "crystallized labor" are used to explain the Marxian view.

Since all value was exclusively and solely attributable to labor, such payments as interest and profit were a theft from labor. What the laborer received for his toil was bare subsistence. The product of his toil was sold by the capitalist at a market value far in excess of the subsistence needs of the worker. The difference between what the worker actually received and the value which he produced was surplus value. Profit was, therefore, nothing other than unpaid labor.

Two lines of protest against the Marxian exaggeration of the labor element in value presented themselves. One of these attempted to attribute value wholly to the side of demand or utility. The other attempted to prove that although cost of production determined prices, nevertheless labor was not the sole cost of production, but was accompanied by other legitimate costs, including interest, rent, and profit.

The most direct attack upon the Marxian excesses came from the theorists who attributed value to demand. Thus, W. S. Jevons wrote, "Repeated reflection and inquiry have led me to the somewhat novel opinion that *value depends entirely upon utility*." Jevons, an English economist, was closely sympathetic in point of view with a French economist, Walras, and an Austrian economist, Menger. Chiefly through Menger, and allied Austrian economists, the marginal utility theory of value was built up in great detail. The marginal theory has become associated with the "Austrian School" of economists. They shifted emphasis from the supply and cost side of the matter to the demand and utility side.

The final solution of the separate value theories was contained in the

⁴ Volume I, pp. 1, 33, 74.

proposition that both supply and demand, or cost and utility, are of importance in determining value. Even Adam Smith and Ricardo gave recognition to demand as well as to supply factors, but in their emphasis upon labor as the cause of value, they left an opportunity for the Marxian doctrine of exclusive labor value and of surplus value. Toward the close of the nineteenth century and during the first two decades of the twentieth century, both supply and demand have been assigned places of importance in value theory. A merger of conflicting tendencies has taken place, and the theory of value has come to be a balanced doctrine of supply and demand.

Instrumental in this merging process were Alfred Marshall in England, and J. B. Clark, R. T. Ely, S. N. Patten, F. A. Fetter, and F. W. Taussig, to mention only a few of the men prominent in the development. They applied the marginal concept rigidly to supply and cost as well as to demand and utility. Over against marginal utility they balanced marginal disutility. Marshall illustrated the joint importance of supply and demand, cost and utility, by the analogy of a pair of shears. One blade he termed supply, the other demand. The cutting of the shears corresponded to price. No one would say that price or value was due to one blade alone, without the coöperation of the other. The cutting, or valuation, process depends upon the mutual coöperation of both blades, supply and demand.

Logically, the connecting link between supply and demand is *scarcity*. Cost of production or quantity of labor affect value only by first affecting the *scarcity* of the goods on the market. Cost as such and labor as such have no direct influence upon value. Only indirectly as they influence scarcity can they influence value. On the other hand, the price paid by demanders of goods will depend upon the scarcity of the goods. Scarcity is a term which is relative both to supply and demand. Gustav Cassel, in his *Theory of Social Economy*, written in 1924, takes the position that economic theory can dispense altogether with the categories of marginal utility and disutility, and can formulate a complete theory of value purely on the basis of price, *scarcity*, and demand. His preface states, "From the first beginnings of my studies of this science I have felt that it ought to be possible to do away with the whole of the old theory of value and build up the science from the beginning on the theory of prices."

It is not necessary to go to the extreme suggested by Cassel, and to reject the whole marginal analysis. We may use it for limited purposes, and within certain boundaries. But Cassel's criticism does indicate that traditional value theory does not furnish a completely adequate theory of value. A large number of the younger generation of economists have found the traditional theory insufficient to solve their new problems. Even though such theory be conceded to be all right as far as it goes, most emphatically it does not go far enough. What shall be used to supplement and extend the traditional theory? In answer, economists are not agreed, but the trend is strongly in the

direction of price analysis of the money economy. Instead of making a subjective value theory, the trend is toward an objective analysis in terms of prices. Statistical methods make possible quantitative studies of the major price problems. The following chapter presents the body of thought and method contained in such price study of the money economy. It represents an extension of value theory calculated to meet the needs of modern economic problems.

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CHAPTER X

PROBLEMS OF THE MONEY ECONOMY

The Meaning of the Money Economy.—In 1924, the total volume of exchanges in the United States amounted to an estimated total of \$700,000,000,000. In the same year, the people spent in retail markets in the neighborhood of \$35,000,000,000. For every dollar spent in retail stores by consumers, about twenty dollars had been interchanged by dealers and middlemen in the long line of tradesmen from first producers to final consumers. The money spent at retail is only one-twentieth of the total money changing hands in the course of a year. The other nineteen-twentieths of the total volume of money payments consisted of a vast complex of contracts, purchases and sales, between countless dealers, speculators, shippers, traffic companies, manufacturers, and traders. This vast maze of money transactions is *the money economy*.

In the money economy, a contrast appears between the technology of producing physical goods and the technology of producing money gains. The former technology comprises the process of *industry*. Here belong the efforts of farmers, miners, manufacturers, and all those whose energy is devoted to the fabrication and preparation of goods for human use. The devices of engineering, of machinery, of human skill, of efficiency, of scientific management, are applied to the tasks of industry. But the technology of money gains belongs in the category of modern *business*. Industry is making goods, whereas business is making money. Business comprises the efforts of financiers, promoters, dealers, speculators, accountants, and tradesmen. Their task is, from a modicum of goods, to buy at one price and sell at another, thereby making a margin of profit. The goods are incidental, the real desideratum is the money profit.

This contrast between industrial and business pursuits penetrates the whole fabric of modern economic life. Let us take the position of a factory worker. On the surface, he is engaged in the production of goods. But this is not his direct motive. He is producing the goods for others, not for himself or his family. He has no direct interest in the goods. He will never wear the shoes or the clothes which he is making. He will never see the product again after it passes his hand. He is producing goods for others, not for self. But one vital interest inheres in this task, namely, the money he can get out of it. His pay envelope is the thing. His direct motive is to make as large a money wage as possible. He must, it is true, go through a certain number of perfunctory motions as a laborer in order to secure this money reward.

But the test of his prosperity as a worker is the amount of money he makes. He may have to make more or less goods in order to gain the money, but the bright ulterior hope is the pay envelope. Acquisition of money for himself will make him prosperous, and this is absolutely the only thing which, so far as he is concerned, can make him prosperous. *Production for others and acquisition for self dominate the process*, because the laborer is fundamentally engaged in making money and only incidentally engaged in making goods.

Even the modern farmer comes under the money economy. Most of his product is sold for the consumption of others, and most of his own consumption comes from retail markets. Farming has become a cash and credit business. The prosperity of the farmer is often greatest in years when his crop production is lowest, because the short crop, when sold for a high price, yields a larger net profit. His prosperity depends upon the amount of money he can obtain from his crops, whether the crops be more or less. His prosperity is a money prosperity through and through.

The business man is the cardinal type of the money economy. He it is who directs the physical task of making goods, who owns the goods, who owns the capital equipment with which they are produced, who finances the entire undertaking. In so far as he deals with goods, he is directing production for others, but the outcome will be acquisition for himself. The acquisition will be in money. His ability is concentrated on the problems of buying and selling,—buying low in order to sell high, selling high in order to buy further. This activity may or may not result in greater production of goods. If indirectly and incidentally some commodities are produced, well and good. Likewise, if no commodities are produced, but by clever strategies of salesmanship money is made, well and good. Business which enriches the owner and enterpriser in terms of money may or may not enrich the community in terms of goods.

The business man works by pecuniary standards. By these standards, business is prosperous whether it makes more or less goods provided only it makes more money. The pecuniary employments have to do with vendibility and salability rather than serviceability. They concentrate upon ownership, exchanges, bargainings, for the purpose of pecuniary gain. Profit is their goal, product is an incident. To simplify these observations, we may reduce them to a definition of business from the pecuniary standpoint of the money economy. We may define business as *an organized undertaking to gain money profits by a series of price bargains for the purchase and sale of contracts, rights, services, and goods*.

Differential Gains and Social Gains.—Under this money economy, the point of primary concern is what every citizen gets for himself. The attack is individualistic. Not that the citizen is avaricious or greedy, but that his point of approach is naturally what he can get for himself. What he can get for himself depends less on his efficiency in producing

goods for the use of others than on his efficiency in driving shrewd price bargains with all parties concerned. The gain of the individual is a *differential gain*. The person who has the advantage in a price bargain benefits from the other party's disadvantage. One business profits by taking trade away from another business. Profit of one enterprise may be the loss of some other party in industry. Every man is driving as shrewd a price bargain as possible in order to promote his individual prosperity. By exacting a little extra here and squeezing out a discount there, by getting the jump on one's rivals and acting first, by restraints of trade and petty agreements, it is possible to take advantage of chances to increase the money profit.

The relation of such differential money gains to the general social welfare has been a problem challenging the attention of economists. Adam Smith, being an exponent of *laissez faire* and of individual liberty, set forth the doctrine that as each man pursued his own gain he would be led as by an invisible hand to those acts which would redound to the good of all.¹ Self gain would coördinate with social gain, because it would pay best to do those things which were of serviceability to society. Private gain was assumed to coincide with social gain. This relationship was said to be in accord with natural and inevitable laws. The normal and expected thing was an identity between private gain and community gain. If in any case private gain deviated from social gain, the case was said to be exceptional. It was abnormal and unnatural. Any failure to unite service and private gain in the same transaction was viewed as an incidental disturbance of the smooth harmony of natural law. All things were believed to work together for the common good for those who intelligently sought their own self-interest.

In the course of time, much criticism has been aimed at this classic faith in the benign results of pursuit of selfish gain. At an opposite extreme, certain economists have set forth the basic assumption that private gain is public loss. The leading exponent of the extreme view is Thorstein Veblen. His position is taken as follows:

The business man's place in the economy of nature is to make money, not to produce goods. The production of goods is a mechanical process, incidental to the making of money; whereas the making of money is a pecuniary operation, carried on by bargain and sale, not by mechanical appliances and powers. The business men make use of the mechanical appliances of the industrial system, but they make a pecuniary use of them. And in point of fact the less

¹ "Every individual is continually exerting himself to find out the most advantageous employment for whatever capital he can command. It is his own advantage and not that of society, which he has in view. But the study of his own advantage naturally, or rather necessarily, leads him to prefer that employment which is most advantageous to the society. By directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain; and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for society that it has no part in it. By pursuing his own interest he frequently promotes that of society more effectively than when he really intends to promote it." *Wealth of Nations*, Book IV, Chapter II.

use a business man can make of the mechanical appliances under his charge, and the smaller product he can contrive to turn out for a given return in terms of price, the better it suits his purpose. The highest achievement in business is the nearest approach to getting something for nothing. The less any given business concern can contrive to give for what it gets, the more profitable its own traffic will be. Business success means "getting the best of the bargain." Sabotage is indispensable to any large success in industrial business. The private gain which the business concerns come in for by this management entails a loss on the rest of the community, and the loss suffered by the rest of the community is necessarily larger than the total gains which these manœuvres bring to the business concerns.²

It will be noticed that Veblen practically reverses the propositions of Adam Smith. What Smith called disturbances and abnormalities, Veblen declares to be the regular and common phenomena of the money economy. A certain kernel of serviceability is conceded, but for the most part, Veblen considers business as rank parasitism. Private gain consists of "getting something for nothing," of restriction of output, of sabotage. According to Veblen, this is the natural and normal working of the price system. And the exception or abnormal is the occasional instance where service and private profit harmonize. It is unnatural to expect substantial good to accrue from unmitigated pursuit of private profit.

This seathing and ruthless criticism of business is supported by many authorities of a similar bent of mind. R. H. Tawney refers to it in his mention of "the sickness of an acquisitive society." Sidney Webb refers to it in the title of one of his books, *The Decay of Capitalist Civilization*.

The realistic truth would seem to lie somewhere between the views of Smith and Veblen. Business is neither all good nor all bad. Each of these authorities seized upon one phase of business and played that phase up to the exclusion of everything else. There is much more validity in Veblen's position than the average business man would be willing to admit. There is much more validity in Adam Smith's position than the average socialist would be willing to admit. After one finishes reading Adam Smith, he looks around for the harmony, equilibrium, and serviceability which nature is said to provide, and everywhere he sees poverty, discontent, warfare, ugliness, cheapness, and decay. After one finishes reading Veblen, he looks around for the iniquity, spoliation, and parasitism which naturally are said to result from the money economy and everywhere he sees beautiful homes, good schools, happy children, and the highest standard of living the world has ever known. Business is responsible for both sets of facts.

What conclusions may be drawn in explanation of pecuniary values? First, business consists of getting as much money as possible out of each deal. Value is represented in the price bargains made in a series of deals. In each deal, the attempt is made to exact as large a differ-

² *The Vested Interests*, p. 92 ff.

ential gain as possible. Second, this endeavor results in an underlying current of serviceability together with a surface current of disserviceability. Each business transaction results in a partial service and a partial disservice. The service aspect arises from the fact that goods reach the hands of consumers, and elevate their standards of living. The disservice aspect arises from the fact that restriction of output, excessive prices, and other differential gains are exacted. In trying to get as much money as possible out of each deal or bargain, certain individuals make a gain at some one else's expense, but at the end of the series of deals, goods are available for human use. Thus, the consequences of business are a compromise between parasitism with its differential gains and serviceability with its social gains.

The path of progress would seem to be in the direction of devising ways and means for insuring that money making shall more and more coincide with goods making. Better trade ethics, better commercial laws, better working rules, better business standards, hold out the prospect of improvement and development. The inherent workings of the money economy can be extended and amended so that private profit will be increasingly at one with public product.

Pecuniary Supply and Demand.—In previous chapters, discussion of supply and demand has proceeded on the assumption that given quantities of each are known. But this assumption becomes too broad when the actual conditions of the money economy are encountered. Under these conditions, both supply and demand are unknown quantities. No one knows definitely what the supply of a certain commodity is, and no one knows definitely what the demand for the commodity is. Business men make estimates, guesses, and approximations, but their guesses often prove in the course of time to have been hopelessly wrong. The force of supply is what business men *think* the supply to be, and the force of demand is what they *think* demand to be.

The individual concern, of course, knows what its own supply is at any one time, but that knowledge is utterly insufficient as a guide to estimating the supply of all other concerns in the same branch of production or trade. If there are 100 different factories making a certain kind of cloth, each single factory needs to know not only its own supply, but the supply of the other 99 factories. Indeed, the scope of supply is broader than this, because it must comprehend producers in foreign countries as well. Possible imports or exports are a primary factor in supply. The single farmer knows only the amount of his own crop. But the price for his crop will be the result of the supply of all other farmers, not merely at home, but in other countries. International supply is as important as national or local supply. The individual producer faces immense difficulties in discovering what the general supply is at any given time. The task of collecting nationwide and worldwide information is stupendous. On the demand side, the same perplexity appears. The individual can only guess at his demand, and must take into account demand for competitors' products as well as for

his own products. Under these circumstances, supply and demand are unknown quantities, and the best that can be done is to make the estimates as scientific and accurate as possible.

INDEXES OF PRODUCTION *

(Computed Normal = 100 Per Cent)

	1924	1925		
	Mar.	Jan.	Feb.	Mar.
<i>Producers' Goods</i>				
Pig iron	105	102	106	105
Steel ingots	110	113	113	107
Bituminous coal	89	109	96	83
Copper, U. S. mines	94	109	111 _r	107 _p
Tin deliveries	73	130	119	111
Zinc	93	97	97	96
Petroleum	125	123	120	...
Gas and fuel oil	111	111	105	...
Cotton consumption	82	96	101	96
Woolen mill activity †	95	98	97	94 _p
Cement	125	144	119	129
Lumber	129	146	136	122 _p
Leather, sole	75	78	83	82
<i>Consumers' Goods</i>				
Cattle slaughtered	100	110	102	110
Calves slaughtered	119	149	158	143
Sheep slaughtered	88	83	85	98
Hogs slaughtered	123	112	103	88
Sugar meltings, U. S. ports	99	116	85	115
Wheat flour	103	103	104	89
Cigars	96	102	95	96
Cigarettes	79	90	78	80
Tobacco, manufactured	96	111	103	98
Gasoline	130	138	141	...
Tires †	156	169	171	...
Newsprint	106	109	111	113
Paper, total	100	105	106	102
Boots and shoes	91	77	92	91 _p
Anthracite coal	98 _r	94 _r	103 _r	85 _r
Automobile, all	131	100	110	119
Automobile, passenger	138	94	106	121
Automobile, truck	101	123	127	112

* *Monthly Review*, Federal Reserve Bank of New York, May, 1925, p. 5.

† Seasonal variation not allowed for.

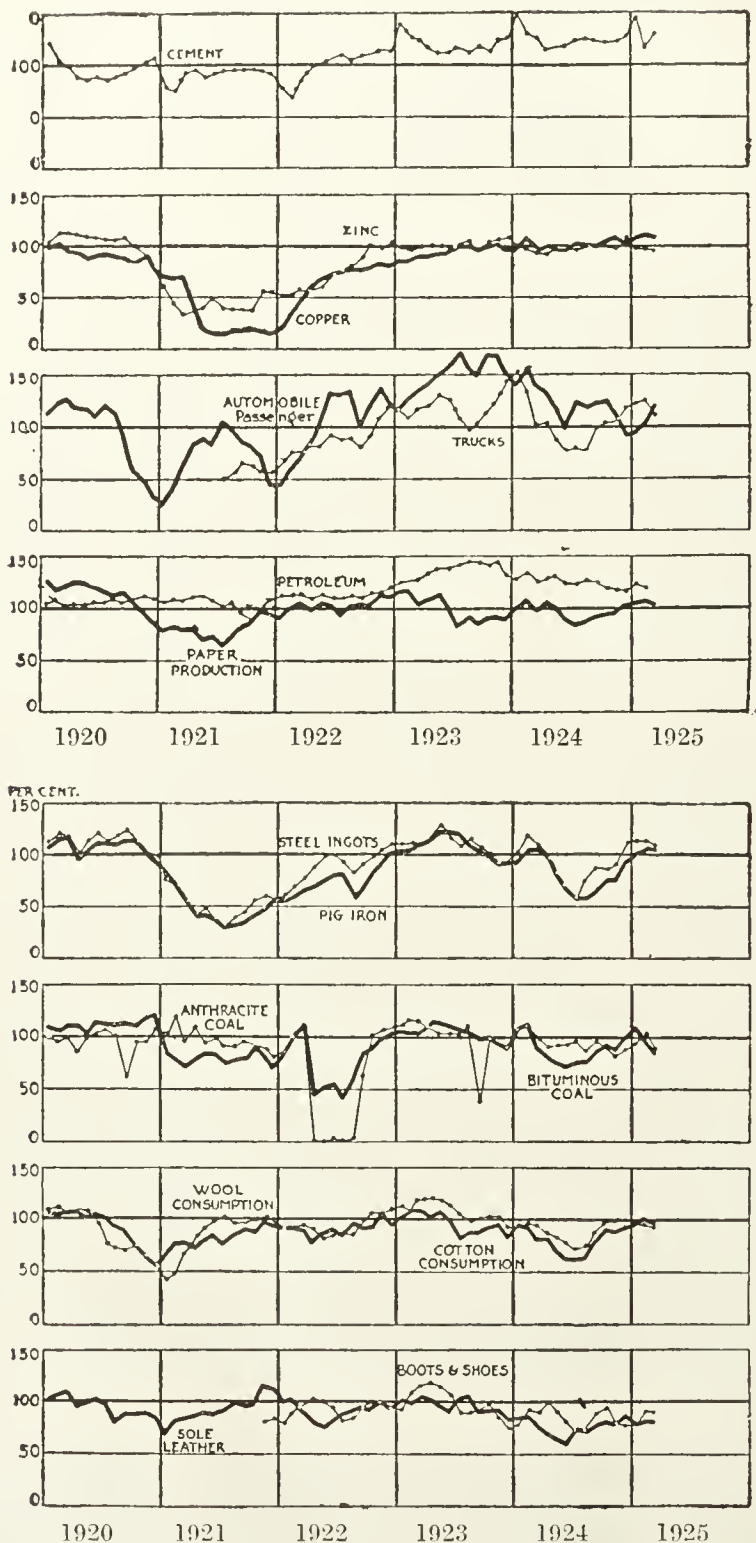
p Preliminary.

r Revised.

To give quantitative precision to the concepts of supply and demand, it is necessary to employ the devices of statistics. Statistical measurement of output, stocks on hand, sales, and the like, make possible a

MONTHLY PRODUCTION IN BASIC INDUSTRIES. SEASONAL VARIATION ALLOWED FOR

(Computed Normal = 100 Per Cent)



measurement of the factors which influence prices. Statistical measurements can be reduced to index numbers, and can be portrayed by graphs and charts, so that business men can grasp readily the quantities presented. A whole technique of measurement has grown up, and has become useful in guiding the estimates which are made of supply and demand. Although still in its infancy in many ways, nevertheless this technique has laid firm foundations and has already made important achievements. In business, it is utterly inadequate to refer vaguely to abstract logical concepts of supply and demand. The necessities of the money economy urge upon the business man the importance of knowing *how much* supply and *how much* demand there are over a stated period of time.

For purposes of illustration, certain samples of statistical measurement are presented in accompanying diagrams. These samples make no pretense to affording a thorough and complete description of the technique of measurement. Such a task belongs in a separate intensive study of business statistics and their interpretation.

Statistics of supply may be given in the form of absolute quantities of a product. For example, they may be given as millions of tons of coal, or millions of bushels of wheat. But for convenience in use, these raw statistics may be reduced to index numbers of various types. The accompanying charts present index numbers of production, the indexes being calculated as percentages of an estimated normal. This estimated normal is a mathematical fiction in a sense, since it is not the actual production but the assumed production under certain conditions. It is computed on the basis of the average rate of growth and the average seasonal fluctuation for a given date. Computed normal is the amount which production would be if the industry followed the rate of growth which has prevailed in the recent past and if it followed the average seasonal variation. The indexes in the table on page 149 show whether production is above or below the estimated normal, and how much it is above or below.

These indexes may be used to gain a long range view of production movements by charting the data over a period of years. The diagrams on page 150 afford comparisons between various lines of industry over the period from 1920 to 1925.

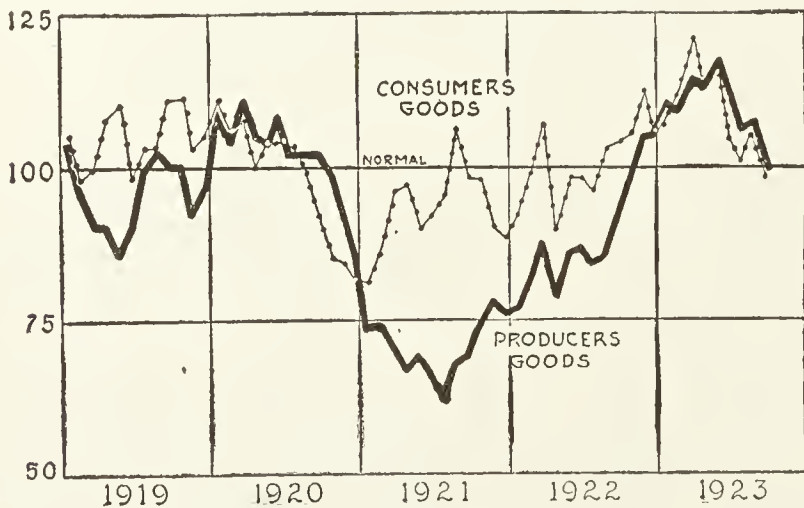
It is obvious that some industries are above normal when others are below normal, and that the magnitude of fluctuation varies widely. Such variations show forcefully the need for individual study of supply in each separate industry. In large measure, the fluctuations above and below normal are interwoven with the general business movements which have come to be called the business cycle.

The diagram on page 152 presents the differences in production as between two major classes of goods, those intended for use by consumers and those intended for use by producers for further production. The individual goods included in each classification were shown in the table above.

In general, it will be noted that consumers' goods fluctuate less violently than producers' goods. The output of producers' goods in the summer of 1921 was barely one-third what it had been in the early part of 1920. The output of consumers' goods was nearly two-thirds in 1921 what it had been in 1920.

The foregoing tables and charts pertain to current production. They represent measurements of the new supply that is being put on the market by the present operation of industry. But current output is by no means a complete measure of supply. In addition, it is necessary to have a measurement of the accumulated stock of goods on hand.

PRODUCTION OF CONSUMERS' GOODS AND PRODUCERS' GOODS *
(Computed Normal = 100 Per Cent)



* *Monthly Review*, Federal Reserve Bank of New York, November 1, 1923, p. 5.

Accumulated stocks vary widely from time to time. If goods have been accumulating on dealers' shelves and in warehouses, the situation means that current production has been running ahead of current consumption. The diagram on page 153 shows the different fluctuations of stocks of goods and of current output of goods.

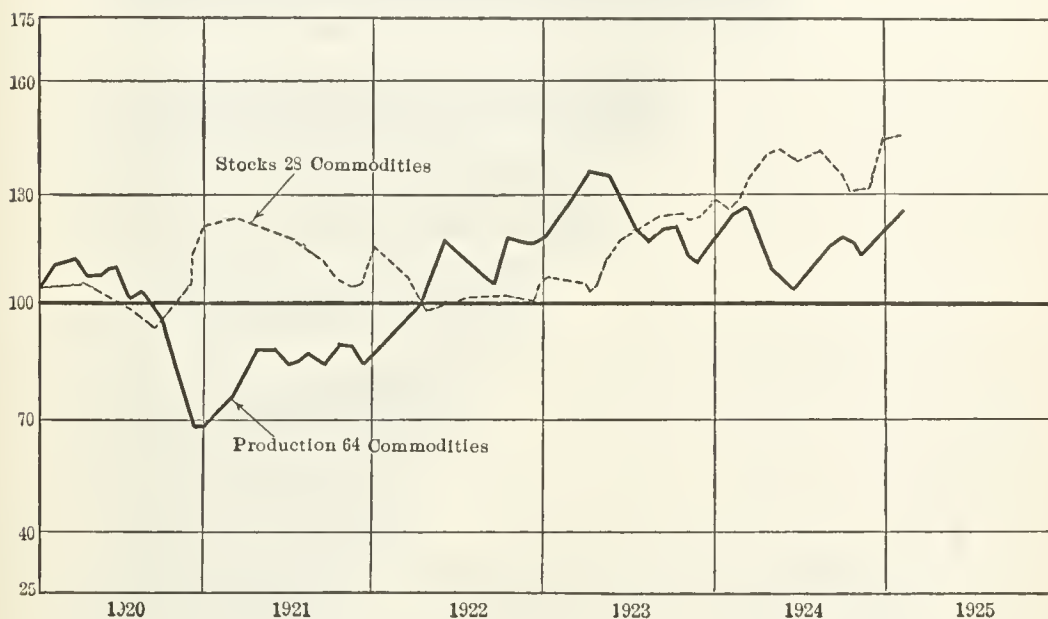
The nature of accumulated stocks varies significantly from industry to industry. In manufacture, if producers discover an excessive accumulation of stocks, they can close down their plants and mitigate the consequences of overproduction. In agriculture, if excessive stocks are discovered after crops are planted, there is no way of closing down the activity of the farm. Current farm production is relatively slow in adapting itself to the conditions of accumulated supply. In refrigerated products, figures showing the amount of butter, eggs, and like products in cold storage are of leading importance. In cereal crops, the carry over of supply from one year to the next has to be taken into account. As the factors vary from product to product, the individual analysis of each product is necessary.

The diagram on page 154 illustrates the application of statistical technique to the problem of automobile supply:

On the side of demand, statistical measurement is useful in estimating the rate at which goods are moving into consumption. Two stages of the process of distributing goods to consumers may be noted. The first or primary stage is represented by the volume of goods being

RELATIVE CURRENT PRODUCTION AND ACCUMULATED STOCKS FOR MANUFACTURED COMMODITIES *

(1920 Monthly Average = 100)



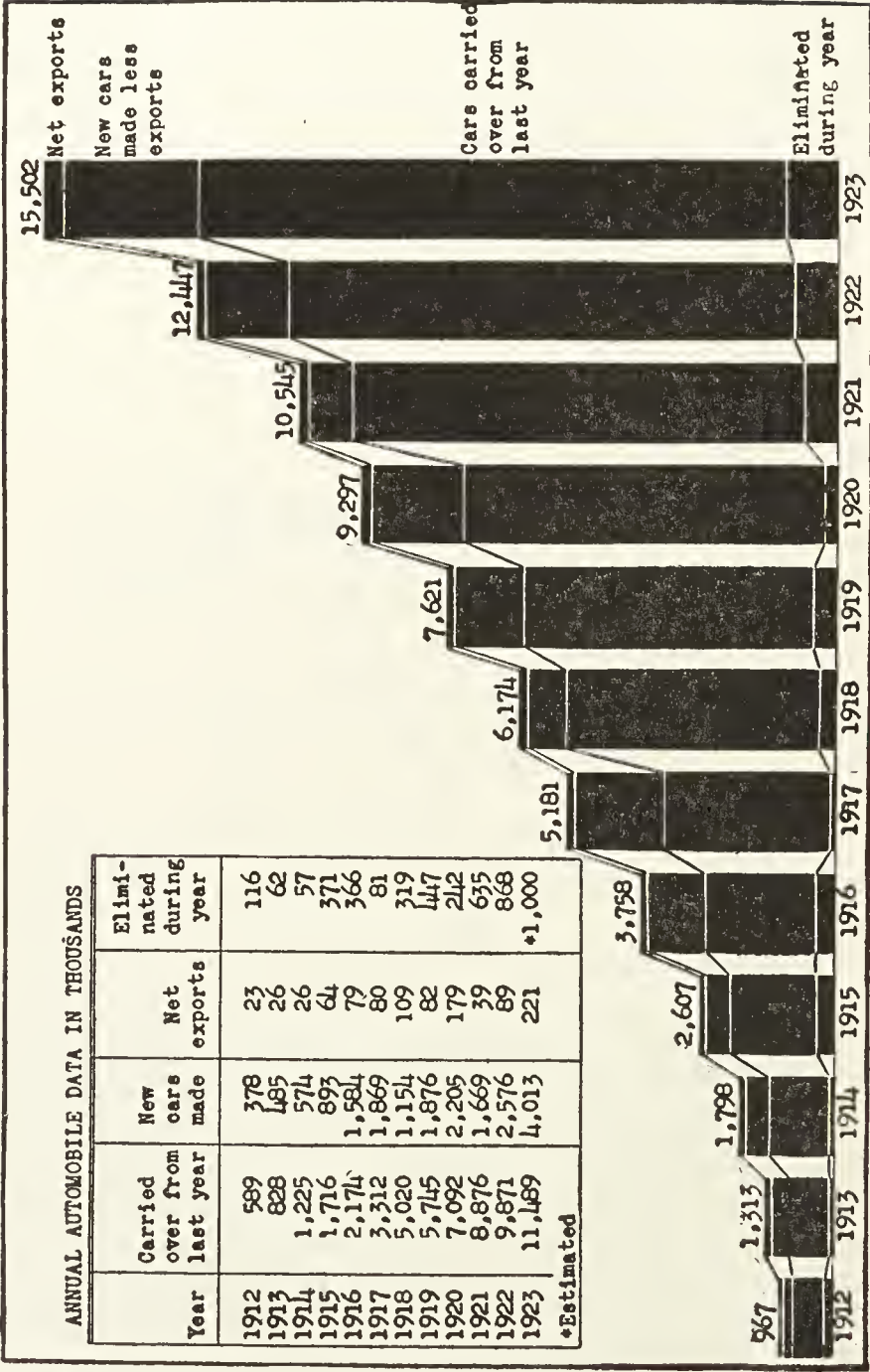
* *Survey of Current Business*, April, 1925, p. 8.

handled by railroads, by the volume of wholesale trade, by exports and imports, and similar series of items. The second stage is distribution direct to the consumer, and is represented by sales of retail stores and similar items. Moreover, permeating both of these stages is the factor of general business activity. The tempo and intensity of business vary greatly from time to time, and in order to measure the probable demand for goods, it is necessary to know the general tone of business. Consequently, the attempts to measure demand resolve themselves into three major classifications, primary distribution, distribution to consumers, and general business activity.

The table on page 155 illustrates data bearing upon these three major classifications of demand statistics.

These indexes may be plotted over a period of years, to show the characteristics of their fluctuations. The diagrams on page 156 afford a long-range view of various items.

SUPPLY IN THE AUTOMOBILE INDUSTRY *



* Business Bulletin, Cleveland Trust Company, May 15, 1924.

These diagrams bring out the sharp differences between various items. Factory employment reflects variations in wage earners' purchasing power. Railroad traffic reflects the movement of goods in the direction of consumers. Wholesale trade reflects the anticipations of retail trade.

INDEXES OF DISTRIBUTION AND DEMAND *

(Computed Normal = 100 Per Cent)

	1924	1925		
	Mar.	Jan.	Feb.	Mar.
<i>Primary Distribution</i>				
Car loadings, merchandise and misc. . .	108	104	112	110
Car loadings, other	113	113	109	105
Wholesale trade, Second District . . .	97 _r	94 _r	100 _r	95 _r
Exports	84	94	90	102 _p
Imports	102	110	109	113 _p
Grain exports	73	67	65	...
Panama Canal traffic	138	95	100	106
<i>Distribution to Consumer</i>				
Department store sales, Second Dist. . .	97	97	107	98
Chain store sales	102 _r	96 _r	99 _r	96 _r
Mail order sales	85	98	101	92
Life insurance paid for	103	98	99	99
Magazine advertising	91	92	98	97
Newspaper advertising	96	91	93	92
<i>General Business Activity</i>				
Bank debits, outside of New York City	104 _r	111 _r	109 _r	110 _p
Bank debits, New York City	107 _r	122 _r	117 _r	122 _p
Velocity of bank deposits, outside of New York City	104 _r	101 _r	99 _r	101 _r
Velocity of bank deposits, New York City	107 _r	111 _r	112 _r	113 _r
Postal receipts	96	98	98	...
Electric power	105	106	105	...
Employment, N. Y. State factories . . .	99 _r	92 _r	93 _r	93 _r
Business failures	104	98	96	105
Building permits	197 _r	159 _r	181 _r	163 _r

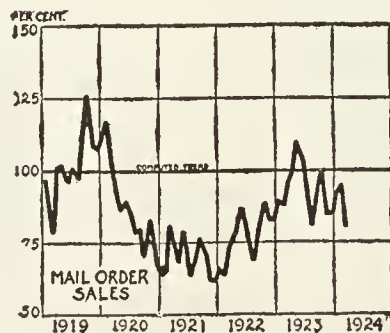
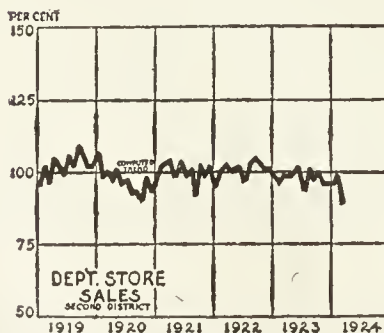
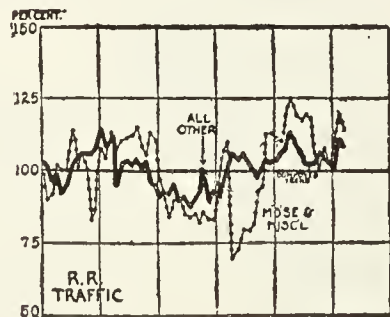
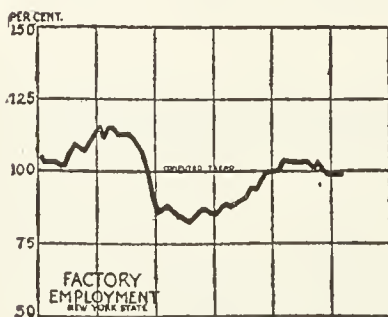
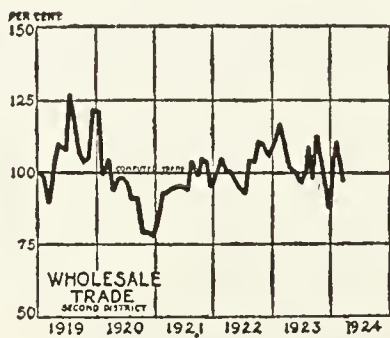
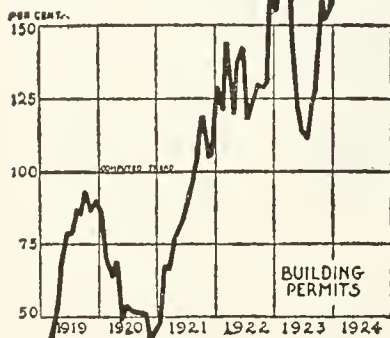
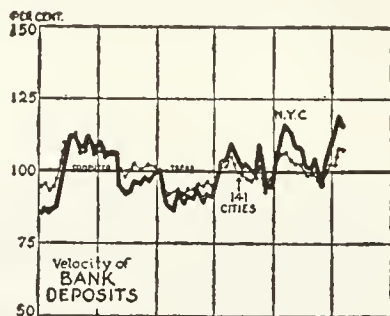
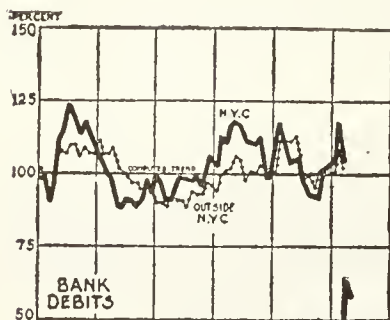
* *Monthly Review*, Federal Reserve Bank of New York, May, 1925, p. 5.*p* Preliminary.*r* Revised.

Department store sales and mail order sales reflect the actual movement of goods into the hands of consumers. Each item has a particular significance.

The purchasing power of farmers is sensitively reflected in the volume of mail order sales. The decline in mail order business in 1920 to 1922

MONTHLY CHANGES IN DISTRIBUTION, DEMAND, AND GENERAL BUSINESS ACTIVITY *

(Computed Normal = 100 Per Cent)



* Monthly Review, Federal Reserve Bank of New York, May, 1925.

was directly traceable to the agricultural depression, the slump in farm prices, and the small purchasing power of the farmer's dollar.

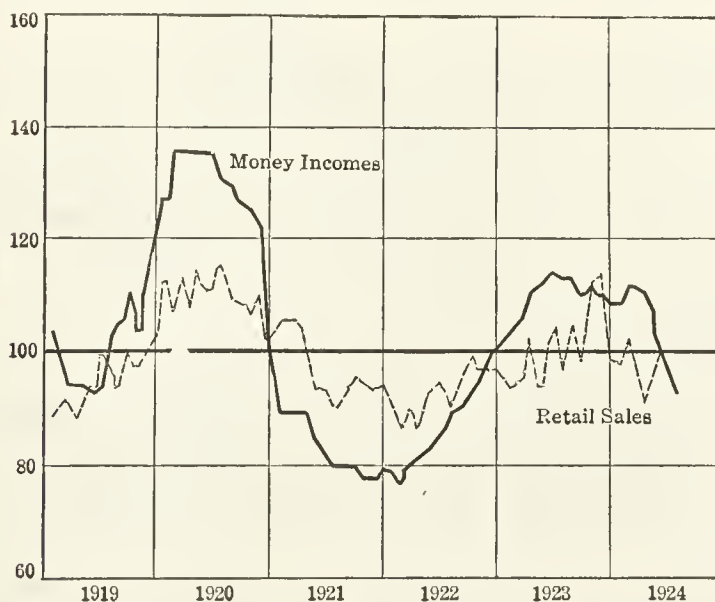
The purchasing power of wage earners is of great importance as a guide to demand fluctuations. The purchasing power of this group is governed by a combination of two basic factors, including the hourly wages rates and the number of hours employed. The volume of factory employment "probably forecasts by a few months the commercial buying

MONEY INCOMES OF FACTORY WORKERS *

(Base, 1919-1922 Average = 100. Corrected for Seasonal Variation)

RETAIL SALES OF 333 DEPARTMENT STORES

(Base, Estimated Line of Secular Trend = 100. Unit 1%. Corrected for Seasonal Variation)



* W. A. Berridge, *Purchasing Power of the Consumer*, pp. 88, 110.

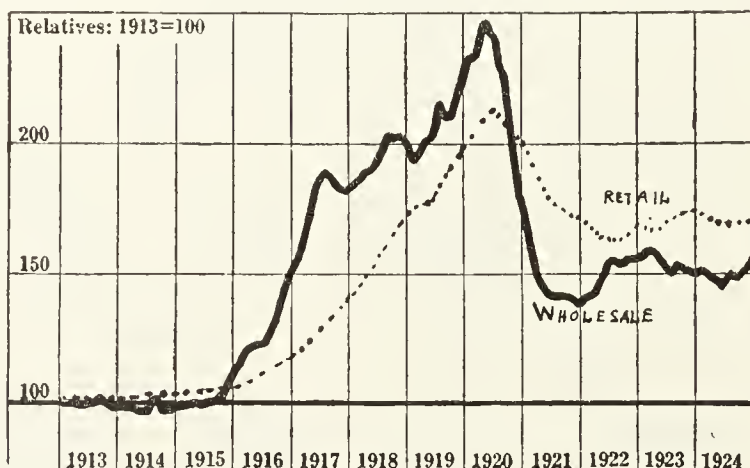
power of those large numbers of our people whose earnings are in the form of industrial wages." ³ Laborers' incomes are a compound of volume of employment and rates of wages. The correspondence between money incomes of factory workers and sales of goods at retail is shown in the diagram above.

In general, money incomes and retail sales show a sympathetic relationship. Retail sales are relatively more steady than money incomes, but the direction of the movements of the two factors is much the same. Consumers' demand is indicated with substantial accuracy by the changes in wage earners' incomes.

³ W. A. Berridge, *Cycles of Unemployment in the United States*, p. 70.

Price Movements.—The classical economics dealt with an abstract price related to given but unknown amounts of supply and demand in an assumed state of free and unrestricted competition. The concepts evolved by this method of approach are of value, but they are not the chief concern in the money economy. In the present business order, the chief concern is with actual prices of concrete goods related to statistically measured quantities of supply and demand in the real world of business. The endeavor is to reduce price movements to definite measurement. The object of this endeavor is to forecast as well as possible future price movements, to profit from favorable price changes, and to avoid the loss of unfavorable price changes.

AVERAGE OF WHOLESALE AND RETAIL PRICES *



* Wholesale prices are United States Bureau of Labor Statistics monthly averages of 404 commodities. Retail prices are United States Bureau of Labor Statistics monthly averages, covering data from 32 cities, and comprising food, clothing, housing, fuel and lighting, furniture, miscellaneous.

For measurement purposes, prices are commonly expressed in index numbers. Such indexes are percentages of change with reference to some year taken as a base. The index percentages of change measure with substantial accuracy the fluctuations in prices. To illustrate the nature of price indexes, there are given on pages 158 to 161 sample diagrams of various types of price movements. These samples are classified in three major groups, as follows:

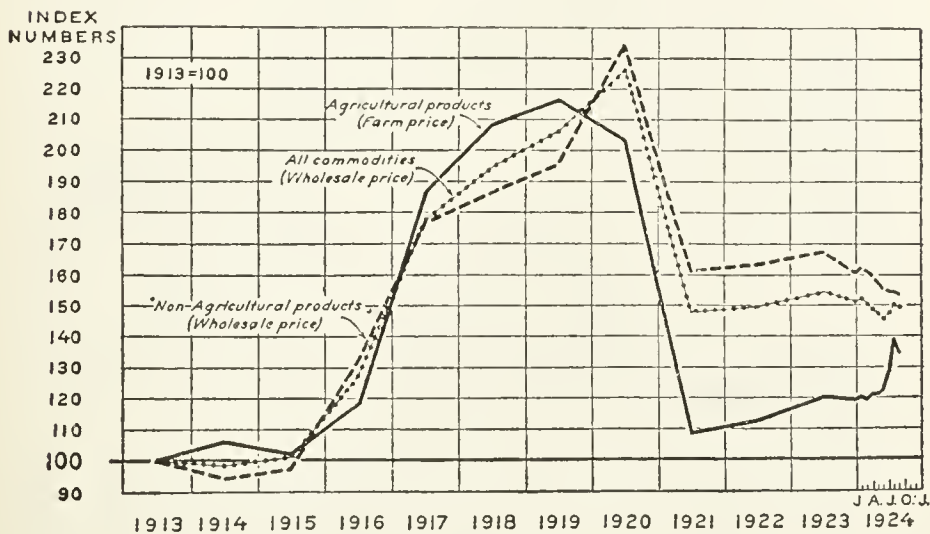
1. Average of all wholesale and retail prices.
2. Average of prices by major groups of commodities.
3. Prices of single commodities.

The United States Bureau of Labor Statistics classifies commodities in nine main groups for the purposes of group price indexes. These main groups are as follows:

Farm products.
 Foods.
 Cloth and clothing.
 Fuel and lighting.
 Metals and metal products.
 Lumber and building materials.
 Chemicals and drugs.
 House furnishing goods.
 Miscellaneous.

The prices of major groups of commodities show marked differences in their fluctuations. Such differences are illustrated in the diagrams on pages 159 and 160:⁴

INDEX NUMBERS OF AGRICULTURAL PRODUCTS, NON-AGRICULTURAL PRODUCTS AND "ALL COMMODITIES"



The diagram on page 161 shows the differences in fluctuations of various individual commodities.

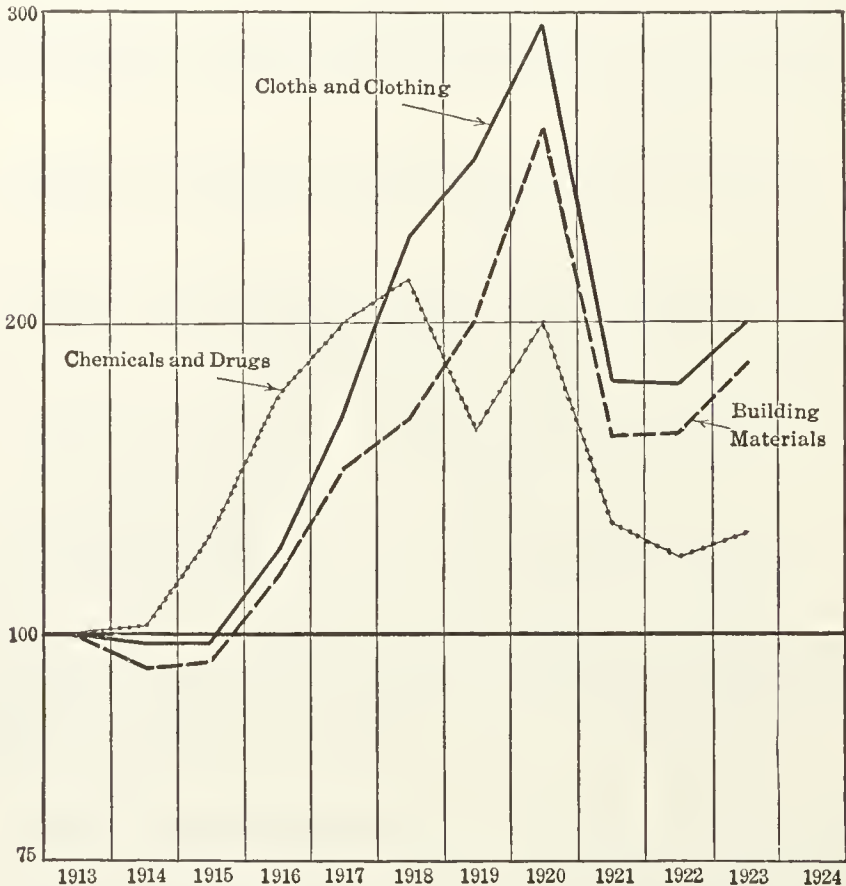
These diagrams of price movements illustrate certain general conclusions. The comparison of wholesale and retail prices shows that retail prices move more slowly and more mildly than wholesale. Retail prices are said to lag behind wholesale, both on the up and the down grade. The comparison of prices of major groups of commodities indicates sharp discrepancies between the groups. Farm prices were excessively high in 1919, but were in turn excessively low following 1921. The magnitude of variations and the time of variations show marked differences as between different groups of commodities. Likewise, differences between individual commodities are of material significance. By studying movements and fluctuations of concrete prices over definite

⁴ United States Bureau of Labor Statistics, *Monthly Labor Review*.

periods of time, it is possible to arrive at a clearer understanding of the trends of prices and of their significance for the prosperity of business.

The Principal Time Variations.—The variations in supply, demand, and prices fall into four main classifications. The four main types of fluctuations are stated as follows by Persons:

INDEX NUMBER OF PRICES OF GROUPS OF COMMODITIES
(1913 = 100)



1. A long time tendency or secular trend; in many series, such as bank clearings or production of commodities, this may be termed the growth element;

2. A wave-like or cyclical movement superimposed upon the secular trend: these waves appear to reach their crests during periods of rising prosperity and their troughs during periods of industrial depression, their rise and fall constituting the business cycle;

3. A seasonal movement within the year, with a characteristic shape for each series;

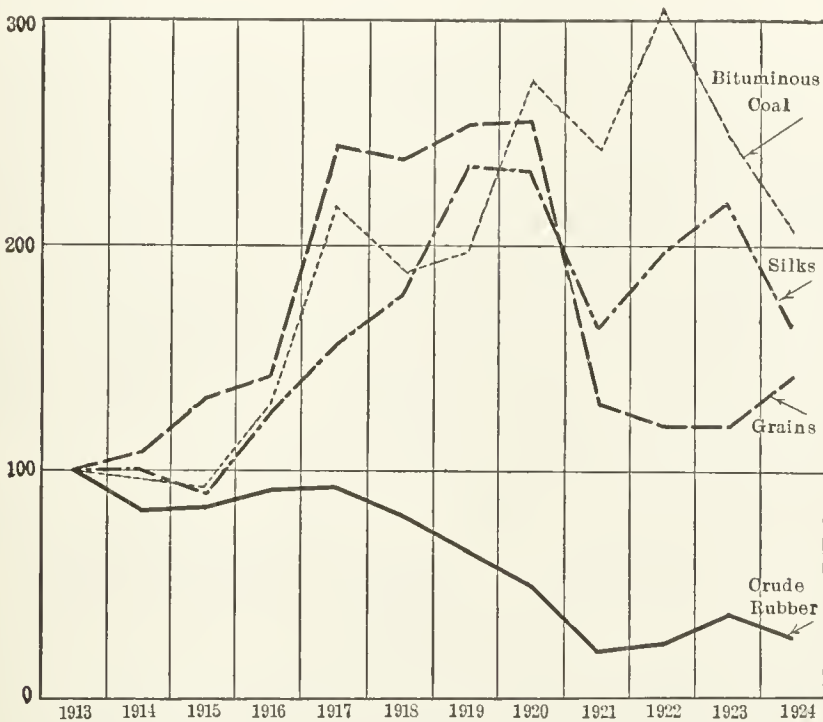
4. Residual variations due to developments which affect individual series, or to momentous occurrences, such as wars or national catastrophes, which affect a number of series simultaneously.⁵

⁵ Warren M. Persons, *Indices of General Business Conditions*, p. 8.

Each factor of supply, demand, or price is a composite of these four types of fluctuations. The types of fluctuations appear in all items, but not in uniform degrees. The four types of change are common characteristics of all articles of supply, of all classes of demand, of all price indexes, but the extent to which the types manifest themselves varies widely from one commodity to another.

INDEX NUMBERS OF PRICES OF INDIVIDUAL COMMODITIES

(1913 = 100)



By utilizing these main types of change, it is possible to advance our understanding of values much beyond the point where we vaguely refer to long-run and short-run movements. These types of change afford opportunity for statistical measurement along definitely standardized lines.⁶

Normal Equilibrium and Abnormal Disturbance.—The traditional economies stressed normal equilibrium, the static state, and the point at which competition tended to bring all things into a condition of balance and rest. The constant turmoil and disturbance were viewed as abnormal. Gradually all the waves of commotion would tend to subside and the surface of the economic sea would be in perfect calm.

The more recent emphasis is upon the disturbing factors themselves.

⁶ These four types have previously been illustrated in chapters dealing with production and consumption. See pp. 49-51, 87-88. They are further illustrated in later chapters dealing with business cycles.

In other words, in the money economy *disequilibrium* is constantly with us. The most normal condition surrounding us is repeated change, not static rest. Consequently, we may advantageously study the fluctuations, variations, and movements of all factors in the market. Our center of attention is dynamic change, not perfect equilibrium. We must know something of the nature of the changes always encircling us, how to interpret them, how to predict them, perhaps how to control them, at least how to adjust our business activities to them as effectively as possible.

Working with such a subject matter, we do not seek to lay down deductive principles which can be taken as arbitrary laws of value. On the contrary, we seek to discover the ways in which changes take place. We use lags, correlations, trends, probabilities, and frequencies as our instruments for analyzing change. In place of absolute statements or abstract concepts of value, we deal with concrete studies of the variations of actual data. We use averages, variations, tendencies.

Changing Price and Volume of Sales.—The popular understanding of the principles of supply and demand is to the effect that a high price will cause a decline in sales, but that a low price will bring forth an increase of sales. Much of the abstract reasoning of economics has implied the same cause and effect relationship. The higher the price, the less the sales; the lower the price, the more the sales. Such is the general statement of price theory, and where other things remain equal, the statement is substantially true. But in the actual world of affairs, the fact that other things do not remain equal limits the significance of the laws of price as stated. The things which do not remain equal are the things of most crucial importance to business. *Other things not remaining equal*, we may inquire what effect higher or lower prices will have upon sales and demand.

The answer brings us back to the conception of typical time movements. If a product appeals strongly to the public taste, and an intense want for the product appears, then the normal rate of growth may be steadily upward even though prices are raised. That is, if the secular trend of public want for a good is more and more intense, then rising prices may not cause a falling off in sales. Sales may increase in spite of rising price. Likewise, in the prosperity phase of the business cycle, rising prices do not diminish sales. On the contrary, rising prices are accompanied by a marked increase in sales. While boom and optimism prevail, people buy regardless of increased prices. The same reaction appears in the case of seasonal movements. Clothing prices are highest at the peak of the season, but sales are also highest simultaneously. Left overs are disposed of at cut prices during the off-peak months. Seasonal sales are greatest when prices are highest. Residual forces may cause a similar situation. For instance, prices rose very rapidly during the war, but sales nevertheless increased by leaps and bounds. It is obvious, therefore, that demand variations of a secular, cyclical, seasonal, or residual nature, may reverse the ordinary understanding of

the effect of high prices, and may result in larger sales in spite of high prices.

The same observation may be passed with regard to the effect of low prices on sales. When a product is not in public favor, low prices will not stimulate sales. For instance, when the automobile displaced bicycles and horses, low prices for the latter could not stimulate sales. A falling secular trend of demand more than offsets a cut in price. During the depression stage of the business cycle, low prices do not bring forth sales. Everybody waits for prices to fall still lower. Seasonal and residual factors may likewise nullify the tendency of low prices to stimulate sales.

A recent business phenomenon supplies another illustration of the inadequacy of prices to govern sales in any arbitrary way. The phenomenon of installment credits permeates a large part of modern selling. The effect of such credits is twofold, to raise prices and to increase sales. Installment prices are from 10 to 25 per cent above cash prices, but the installment prices move the goods when the cash prices cannot. Many of the devices of advertising and salesmanship are calculated to bring about the same result. That is, they aim to create a market for the goods at high prices. Many examples are on record of goods which could not find a market at low prices, because cheapness was associated with inferiority. But when the same goods were wrapped in decorated packages, given an aristocratic trade name, and offered to customers of exclusive tastes, they found an ample market. All such occurrences force us to modify our theories of price and demand to fit the facts of modern business.

A Reverse Statement of Supply and Demand.—To emphasize the significance of the money economy, it is useful to reverse the ordinary statement of the law of supply and demand. Ordinarily, supply refers to goods in the producers' hands and demand refers to the effective desire for goods on the part of consumers. The concepts refer to *goods*. But to understand the money economy, we may reverse the concepts and make them refer to *money*. Demand becomes then the desire of producers to secure the dollars which are in the hands of consumers. Demand may be viewed as a business demand for consumer dollars. Supply becomes the quantity of money in the hands of buyers. Supply may be viewed as a pecuniary quantity of dollars in the hands of purchasers.

This version of supply and demand conforms with the actual outlook of modern business. The business man sits in his office contemplating one major problem, namely, how to collect dollars from potential buyers. In the outside world he visualizes a scattered mass of dollars. Pay envelopes, salary checks, net incomes, rise up before his imagination. This vast supply of dollars he must somehow cause to flow into his business. He *demand*s his share of this *pecuniary supply* of purchasing power. He can make his demand *effective* by many devices. One device is to tempt the individual to part with his money by offering him goods at certain prices. The goods are the business man's way of making

effective demand for the real objects of desire,—dollars. Dollars are supply, goods are demand.

The setting of prices by business men is governed chiefly by their desire to part the possible buyer from his money. When price is high, it is because business expects to be able to get the buyer's dollar by offering few goods. When price is low, it is because business believes it impossible to get the buyer's dollar without offering many goods. All effort concentrates on getting the buyer's dollar. Prices are high or low according as it is necessary to give few or many goods in order to get the buyer's dollar. The supply of buyers' dollars on the one hand and methods of getting those dollars into the possession of business on the other hand, explain the prices set in the markets.

This way of viewing supply and demand squares with the way in which initiative is assumed in business. The consumer is a more or less passive and quiescent object. His indifference and lethargy are prime characteristics. But not so with business. Business is on the alert to go after the money of the consumer. If the passive indifference of the consumer acts as a resistance to sales appeal, then it is the function of the "go-getter" to go get the consumer's money by intensive sales effort. The salesman is the epitome of business demand, for his demand is a demand for the buyer's money. The initiative rests with business. The aggressive is taken by business. The victory is won by business.

We have previously described consumption as the satisfaction of wants. We then took the viewpoint of the consumer wanting goods, such as food or clothing. But we may now reverse the viewpoint, and consider the business man *wanting* the dollars of the buyer. The satisfaction of pecuniary wants is the transfer of money from consumers to business men. The thing wanted is the buyer's dollar. Business wants are wants for money. Nothing else satisfies.

The supply of and demand for buyers' dollars shapes the whole strategy of pricing. Business men make their campaigns with as much meticulous care as would a general planning a crucial battle. The tactics of the pecuniary campaign are aimed at one primary purpose, to make money by profitable contracts of purchase and sale. The outcome cannot be successful unless they devise effective methods for acquiring the money of buyers. Acquisition of dollars is indispensable, and guides and directs the price making activities of business.

The Money Economy.—The foregoing considerations are sufficient to illustrate the importance of supplementing and amending traditional laws of value for the purpose of obtaining a more complete guide to the behavior of value in the business world. The money economy accentuates many factors which were but mildly active in the economic life of former generations. To cope with the events of the money economy, it is necessary to supplement traditional value theory with pecuniary theory related to the exigencies of the money economy.

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CHAPTER XI

PROBLEMS IN PRICING

An Extension of Price Theory.—Value theory has for the most part concentrated upon the nature of market value. Commodities bought and sold in markets have been the chief subject of analysis. When the values of capital equipment or other objects not in the market have been considered, they have been treated under the head of *derived* value. Other than market values have been disposed of as values derived from the market values. This inclusion of everything within the scope of market values and the incidental derived values has resulted in a logical and symmetrical system of thought.

But in the modern money economy, it is necessary to supplement these abstract value principles with more definite considerations. Valuation has broadened to include many things not originally contemplated by the masters of thought who formulated traditional economic theory. Valuation should be considered now as a relative term, that is, relative to some specific purpose. If the purpose is rate making for public utilities, valuation involves a peculiar technique which does not apply to any other situation. If the purpose is taxation, appraisal of value has a method unique for that purpose. If the purpose is making complete accountant's records of a concern, valuation proceeds upon certain lines distinctive for that one purpose. If the purpose is investment in property, or appraisal of the security behind loans, or government price fixing for articles of consumption, value is a special matter peculiar to the single purpose in hand. Value as such has little meaning. Value for a specific purpose alone has meaning. Some of the purposes of valuation will be briefly considered.

Valuation of Corporate Securities for Purposes of Investment or Speculation.—The elements of value in the market for stocks and bonds are many and varied. To suggest the character of such elements, it is desirable to present certain of the more important factors governing the prices of corporate securities. When a person buys a security, the thing really bought is a right to income. The interest or dividend paid by the security is the objective of the buyer. In addition to this, he may desire to speculate on an appreciation in value of the security, but such speculation will in turn depend upon some other buyer's desire to obtain the income which the securities yield. In other words, demand for corporate securities is a demand for the incomes which they yield, and supply is supply of incomes which they yield. The upper-

most question in the buyer's mind is how much he can afford to pay for the right to a certain dividend or interest payment.

Since the real objects purchased are rights to income, primary importance attaches to the question of the ability of the corporation to earn an income. Earning power of the corporation is the source and fountain of dividends and interest payments on stocks and bonds. The earning power in question is not merely for the present but for the future. The buyer is anticipating what earnings are likely to be. Future earning capacity is just as important as present earning capacity.

Earning capacity, both present and future, is translated into value by the process of capitalizing incomes. An income of \$600,000, capitalized at the rate of 6 per cent, gives a value of \$10,000,000. Capitalized value is determined by dividing a given rate per cent into the amount of income. Any variation in either the size of the income or the rate of capitalization yields a different capitalized value.

Capitalization of earning capacity is fundamental to all valuation of corporate property. The capitalization process underlies all estimates of investors or speculators.¹

The estimate of earning capacity involves a further concept, which may be stated as the *value of the going concern*. The value of the going concern rests upon tangible and intangible values. The tangible values are the values of the physical plant merely as commodities. Brick and mortar, structural steel, lumber in the plant, all have a price in the commodity markets, and the factory from which they are made has a physical value which is related to this value. Each machine has a value as a machine, a *physical* value. But the sum total of these physical values is less than the whole value of the corporate property. In excess of the merely tangible values are intangible values. The intangible values reflect the capacity of the business to earn money. If a concern decided to scrap its plant, and sell the separate pieces of matter for their scrap value, the selling price would be low indeed. But when the scattered mass of material is fused into a business organization, it has a new value, and a greater value. This added value arises from varied sources. The efficiency and reputation of the management, the possession of a favorable location, the ownership of patents, copyrights, secret processes, and franchises, the morale and *esprit de corps* of the labor forces, the creation of fixed buying habits through advertising, the existence of an effective sales organization, the building of strong credit relations with the banks,—all of these factors combine to augment *the value of the established business as a going concern*. These factors one and all increase the good will of the organization. In 1925, an automobile company which sold for \$146,000,000 included as a part of the purchase price good will valued at \$50,000,000. This value as a going concern is highly perishable and

¹ For further analysis, see below, pp. 228-230.

very difficult to reproduce. If the plant burns up, a new one can be erected in a brief time. But if the going concern is destroyed, it will require years to re-create good will and all the advantages and privileges that go therewith.

This value, although intangible and immaterial, nevertheless is of vital importance in determining the capitalized value of a corporate business. It is important because it represents the capacity of the business to earn extraordinary profits. Going concern value is in proportion to the earning capacity of the business. Good will value is in proportion to the ability to earn excess profits. Earning capacity is the acid test of the proper weight to be given to these intangible assets. This earning capacity, in turn, is the income which is used in determining the capitalized value of the corporation. The market value of its securities will depend closely upon the earning power, as derived from both its tangible and intangible assets.

Although the central factor in the value of corporate securities is the capitalization of expected income, nevertheless this factor is surrounded by many conditioning factors. A partial list of these conditioning influences would include the following: (1) safety of the principal sum; (2) regularity of dividend and interest payments; (3) stability of the market price; (4) marketability of the securities; (5) taxation or tax exemption of the securities; (6) legality of the issue. Each of these items may be minutely studied in special books dealing with finance, but for purposes of the present volume, space permits merely to mention them as important factors conditioning the value of corporation securities.²

This brief statement of the problem of investment values is necessarily incomplete. The purpose is to suggest the scope and nature of the problem, and to include it in the jurisdiction of value theory. Further refinement of the theory of investment values is offered in later chapters of the present work.³

² Valuation of securities involves also a mathematical technique. Market price usually differs from par value. Interest is computed on a par value, but this computation must be adjusted further to find what percentage it is of market value. The capitalization process refers to net yields calculated in this way, rather than to nominal rates on par values.

If a bond is kept until maturity, market fluctuations in the meantime have no significance for the holder. But if the owner wishes to sell before maturity, the price is a mathematical calculation drawn from the following main elements:

1. The current rate of interest on given grades of investments.
2. The redemption price of the bond.
3. The nominal rate of interest specified in the bond.
4. The frequency of interest payments.
5. The number of years to the redemption date.

From these elements, it is possible to calculate proper adjustments in bond values, taking into account the discount or premium on the bonds. Proper allowance for amortization can thus be made.

Of like importance is the calculation of actuarial data, of annuities and present values of future sums. The mathematical technique of investment finance is essential to valuation of financial items. For presentation of this technique, see F. C. Kent, *Mathematical Principles of Finance*, especially Chapter VI.

³ See Chapters XIII, XVII.

Valuation of Public Utilities for Purposes of Rate-making.—Those industries classed as public utilities afford a special problem in valuation. Telephone, telegraph, light, gas, and railway corporations have their rates regulated by public service commissions. Regulation has superseded competition. In these fields of enterprise, competition has for the most part broken down. It has failed to accomplish its function. The function of competition is to drive prices continually down close to the level of costs. Competition checks excess prices, and tends to make market prices equal normal prices. But in the public utilities, this function of competition has proved weak. Public utilities are monopolistic in their nature. Some are monopolies of location. For instance, a railroad may obtain exclusive control of the one best route, a telephone company must have exclusive control of service in order to make complete and universal connections for telephone users. Monopolies of organization are common. Where it is cheaper per unit of service to have large scale enterprise and monopoly control, competition breaks down. This consequence is common in those industries which fall within the law of decreasing unit costs with increasing volume of business. Monopolies of legal origin, due to franchises and exclusive concessions, also appear. In all such cases, competition as an effective weapon for the prevention of excessive prices is futile. The alternative is regulation of rates by public service commissions.

Regulation of rates involves a determination of values. *Fair rates are those rates which will yield a fair return on a fair valuation.* Rate making leads back to value making. Public service commissions cannot fix rates without first fixing the values of the properties of the utilities concerned. The formula, "a fair return on a fair value," has made valuation for rate making purposes the pivot on which the whole structure of rates swings.

Valuation for rate making purposes differs radically from valuation of private industrial properties for investment purposes. In the case of industrial corporations, valuation centers chiefly around the capitalization of earnings. In the case of public utility corporations, valuation cannot take capitalization of earnings as its center without running in a vicious circle. Fair earnings are the unknown quantity, the sum to be found. But if existing earnings be capitalized, and such capitalized value be taken as fair value, then the existing earnings are arbitrarily assumed to be fair earnings. We should be assuming the fairness of the earnings, when this point is the very point in question. It should be obvious that any earnings would be fair earnings, if the valuation upon which they were based were their own capitalized value. To escape this vicious circle, it is necessary to step outside the technique of capitalization of earnings in order to find value for rate making purposes.

However, when a new and independent basis of valuation is sought, the result is not a matter of uniformity and agreement. For the most part, valuation for rate making purposes is a legal invention. Public

service commissions have endeavored to hand down rulings on the subject. State and federal courts have rendered countless decisions in individual cases. Statutory legislation has often attempted to clarify the procedure. By a process of accretion, these multitudinous rulings and decisions have developed into a body of principles of valuation. This body of principles is by no means unanimously subscribed to. It is not even free from ambiguity in many of its implications. But in spite of these limitations, it is a substantial core of principles which can be codified and recognized.

The main interest of the courts in this particular problem of valuation has arisen from their obligation to protect property rights from confiscation without due process of law. The value of which the courts speak is the value which is protected from confiscation by state or federal constitutions. Legal value is *reasonable* value. Reasonableness is a compromise between two things,—reasonable prices to the public for service, and reasonable rewards to the corporations. Corporations cannot sustain rates so high that they constitute an unreasonable charge upon the public. The public cannot exact rates so low that they constitute an unreasonable impairment of the value of the corporation.

In stating the principles of reasonable value, the courts have left matters in a loose and vague form. This much is established, that certain standard factors must be taken into account. Just how much weight must be given to them is largely left to the judgment of the commission or the court in each separate case. We may proceed to examine briefly some of the factors which must be taken into account in determining reasonable or fair value.

One factor of major importance is *original cost*. This figure is often difficult to ascertain, owing to the destruction or incompleteness of records, or to the fact that property has changed hands, gone through receivership, or become part of a consolidation. A further difficulty is in deciding upon what standard shall be taken for defining original cost. The standard may be actual original investment, but many authorities insist that the standard should be merely *prudent* investment. Prudence is intended to eliminate alleged values due to manipulations, speculation and the like. Additional confusion has arisen from the date to which original cost applies. Shall it include merely cost at the formation of the enterprise, or also subsequent betterments and additions? For the most part, it includes the betterments, and is *original cost-to-date*. In estimating this sum, much depends upon the accounting system and records of the corporation concerned. Even after original cost-to-date has been ascertained, that figure cannot be taken alone as the fair value. It simply is one essential step in arriving at fair value. It is not the final step, it is not the only step, it is merely one indispensable step.

A second factor of major importance is *cost of reproducing* the property of the corporation, at present prices. This figure is necessarily an estimate or a guess. It will vary greatly with the major

fluctuations in prices. The cost to reproduce a property would vary immensely between 1913 and 1923, owing to drastic changes in average prices. When prices are rising, public utilities like to have reproduction cost used as a basis of value because it gives them a figure well above original investment. But when prices are falling, public utilities dislike to have reproduction cost used as a basis of value because it gives a figure which may be well below original cost. The weight to be given reproduction cost will depend largely upon the inflation or deflation of prices. Inventory of all items of plant and equipment, and appraisal of original and reproduction cost presents many technical difficulties. When an estimate is at last reached, the figure is not reasonable value, but merely one indispensable factor in determining reasonable value.

Whether original cost or reproduction cost be given more weight, the element of *depreciation* must enter into the calculation of value. Original cost of a new plant means something quite different from original cost of an old plant. The task of the accountant is to charge off each year a certain amount which represents deterioration of the ageing property. Original cost is subject to a deduction for depreciation. But on the other hand, the concern is entitled to a rate large enough to enable it to set aside reserves to meet depreciation charges. Deductions and reserves must both be allowed for the depreciation adjustment. If reproduction cost is under consideration, it makes a difference whether the estimate is applied to reproduction new or to reproduction less an arbitrarily assumed depreciation proportional to the life of the present plant. Accounting methods differ in allowing for depreciation, but whatever the method, depreciation as a factor enters into the calculation of reasonable value.

In further calculation of final fair value many component elements are important. Due weight must be given to market value of securities, capital stock outstanding, overhead charges and working capital, intangible assets and good will, and estimated "present value" of plant and equipment.

In spite of lack of uniformity in court decisions, there is substantial agreement that the foregoing factors must be given consideration in determination of fair value. The weighting of these factors proceeds quite differently from the weighting of the factors which determine the value of industrial corporations under a régime of competition. Fair value for rate making purposes is a new and independent product. The finding of fair value rests upon a technique and a body of principles which are distinct. The source of these determinants is largely legal decisions. The outcome is a special and unique product, value for a particular purpose. Value for rate making purposes differs from exchange value and from investment value for corporate properties. It is a unique and separate kind of value. It should be recognized as an independent fact, although a part, of the general and all-embracing theory of value.

Value for Purposes of Price Fixing.—During the World War, the Government found it necessary to fix the prices of a great many commodities which during peace times have their prices determined by competition. The price fixers evolved a special technique of valuation adapted to their peculiar purpose. In accord with this technique they established prices at the level of what they called *bulkline costs*. They assumed that about one-tenth of the product in any given branch of industry would come from concerns whose costs were altogether excessive. This tenth of concerns could not expect to be protected by having prices fixed at high enough levels to enable them to earn a profit. This tenth would take a loss during any given year. Prices as fixed by the Government would not be high enough to cover the costs of these most unfortunate producers. This tenth of the product would be produced below the bulkline of costs. What then is the bulkline?

The bulkline is that level of cost within which about nine-tenths of the product could be produced. Prices were fixed to protect the bulkline concerns. The bulk of concerns could make a profit at prices adjusted to bulkline costs. The upper nine-tenths of concerns would cover their costs and stay in the business. The lower one-tenth would either get out of business entirely, or hang on in the hope of later on recouping their losses and climbing above the bulkline. The bulkline concept assumes that under normal conditions about one-tenth of all producers will be operating at a loss. This group is in a state of flux, some concerns being killed off, some being temporarily injured but being brought back into the fold of profit at a later year.

The bulkline concept carries to a further refinement the concept of marginal costs. It defines in greater detail exactly what goes on at the margin. It describes the marginal producers under two heads: first, those at the bulkline where costs are low enough to make possible a mild profit; second, those below the bulkline where costs are so high as to prohibit any profit. For price fixing purposes, it was found desirable to protect only that nine-tenths of the product which was produced at profit-yielding costs.

The price fixers in this country largely derived their data on costs of production from the Federal Trade Commission. F. W. Taussig, from experience as Chairman of the Price Fixing Commission of the War Industries Board, directing price fixing in such commodities as iron, steel, copper, lumber, wool, hides, cotton fabrics, sulphuric acid, brick, cement, etc., stated the principle of price fixing as follows: "It was cost of production at the hands of the marginal or bulkline person that usually formed the basis of the prices fixed."⁴ Producers with very low costs would reap large harvests, but they were caught by the excess profits tax.

Although price fixing was a war measure and therefore abnormal, nevertheless it marked out the general economic principles of a funda-

⁴ See *Quarterly Journal of Economics*, February, 1918, p. 240; also Kemper Simpson, *idem.*, Volume 35, p. 287.

mental economic policy. Some people urge the importance of price fixing during peace times as a perfectly normal measure. Although public support of such a proposal would doubtless be lacking, nevertheless war time experimentation illustrated what could be done if price fixing were desired.

Valuation for Purposes of Taxation.—The appraisal of property for taxation purposes rests upon special modes of procedure. Assessed valuation usually is estimated as a certain percentage of the actual market or fair value of the property. The percentage taken varies widely between states. In Iowa, assessed valuation is only 12.7 per cent of true market valuation, whereas in New York, it is 84.8 per cent. Personal property is subject to more violent discrepancies than real property. Indeed, the valuation of personalty has become so unreliable in the hands of assessors that most tax authorities favor the abolition of the personal property tax altogether. Some forms of property are often taxed at full market value, or on the amount invested, of which securities of corporations are an illustration. Intangible property may be assessed at a taxable value, and may produce revenue just as effectively as tangible property produces revenue. The courts recognize good will and going exchange value as proper subjects of taxation. The Supreme Court of the United States has declared: "In the complex civilization of today, a large portion of the wealth of a community consists in intangible property. It matters not in what intangible property consists,—whether privileges, corporate franchises, contracts, or obligations. It is enough that it is property which, though intangible, exists, which has value, produces income and passes current in the markets of the world. . . . If a state comprehends all property in its scheme of taxation, then the good will of an organized and established industry must be recognized as a thing of value."⁵

The attitude of business toward tax value is utterly different from the attitude toward market value or rate making value. On the market, business exaggerates the value of its property as much as possible. Before a public service commission, utilities plead for the highest value obtainable. But before the tax assessor all is different. Business then laments the run-down condition of its property, grieves over its worthlessness, and seeks as low a valuation as possible. Tax values are depressed values, rate making values are inflated values, in so far as it lies within the power of business to influence the situation.

In spite of all that business can do, the power to determine taxable value rests chiefly in the hands of the Government. Constitutional clauses, statutory laws, and judicial interpretation have created a set of principles governing assessed value. The origin of assessed value is mainly legal. The judge and the law are the final arbiters of value for this special purpose. The technique of the tax assessor is auxiliary to the legal principles of valuation. Under these circumstances, valuation for taxation purposes has taken on certain distinguishing characteristics

⁵ 166 U.S. 219; 166 U.S. 221.

and has assumed a body of principles peculiar to its own needs and ends.

Valuation for Miscellaneous Purposes.—The concept of value has been applied to a variety of other special purposes. To indicate the significance of these applications, the following illustrations may be cited:

1. Valuation for *accounting* purposes involves numerous methods of measuring merchandise, plant, investment, depreciation, good will, and other business factors.

2. Valuation for purposes of *bank credit* involves estimation of the worth of collateral as backing for loans, and an estimation of the value of character as a basis of credit. The margin required for various kinds of secured loans varies from about 50 per cent required on real estate to 90 per cent or better allowed on the best bonds.

3. Valuation for *census* purposes involves many considerations of a special sort. Census estimates of national wealth require special statistical methods.

4. Valuation for *insurance* purposes involves an estimate of the cost of shouldering insurable risks by the mathematical technique of the actuarial expert.

5. Valuation by the courts for *condemnation* purposes involves estimates of the worth of property based largely upon the appraised or market values of adjoining properties of similar kind and quality.

These examples of valuation enforce the point that *value is purposive*. What content is to be read into value will depend upon the purpose to be served in each given case. The extension of value theory to purposes other than mere marketing of commodities has become an important phase of modern economic developments.⁶

Competition and Price Practices.—Competition is assumed to secure the survival of the most efficient concerns through the free action of individual self-interest. Low-cost competitors are anxious to increase their business. They can do so by lowering prices. But when they lower prices, they extinguish their high-cost competitors. Such competitors cannot afford to produce and sell at the lowered prices. The most efficient will drive out the least efficient, the low-cost will drive out the high-cost concern. The survival of the most effective concerns will be of maximum benefit to the public. The annihilation of the least effective concerns will rid the public of the unfit. Thus, the free competitive action of individual self-interest will redound to the good of all concerned, both on the side of business and on the side of society.

The theory of perfect competition is hardly ever realized in actual business. The cleansing effect of the struggle for survival between the fit and the unfit is obstructed by many obstacles. The triumph of the

⁶ See Henry Floy, *Value for Rate Making*, pp. 45 ff. "Value for rate making will result in a different amount than value for sale or for taxation. Abstractly the value of the same items must be the same, but the purpose supplies the adjective which modifies the final result."

most efficient over the least efficient is often thwarted by sagacious price strategy.

The obstacles to the perfect working of competition in price may be classified under three headings: *unfair* competition, *price discrimination*, and *elimination* of competition. In general, unfair competitive practices are those practices which enable the less efficient concerns to make profits and to drive the more efficient concerns out of business. Unfair competition tends to permit the survival of the unfit, their unfitness being judged by the fact of their relatively high costs of production and of their relative inefficiency in doing business. The reference to unfair competition as distinguished from fair competition suggests that competition is not altogether and intrinsically good. Competition may be either good or bad, fair or unfair. Competition as such is neither an ideal goal nor a trustworthy goal. Discrimination between desirable and undesirable forms of competition is necessary. Price discrimination favors some buyers and injures others. Its effect is chiefly not upon the competitors of the seller but upon the customers. Elimination of competition is widely practised. Combination, control, monopoly, are implied in this obstacle. The driving out of competition altogether may enable the inefficient but all-dominating concern to survive. Whether unfair competition, price discrimination, or elimination of competition be the method used, the effect is the same in that constructive competition is extinguished.

The concrete practices of approved competition are somewhat difficult of definition. Neither economists, business men, nor the courts are clear and uniform in their definitions of what is fair and what is unfair or of what is competition and what is monopoly. However, substantial agreement exists on many points, and the problem is recognized clearly even though the solution is not as yet always distinct. To understand the nature of the situation, it is necessary to study the price practices which have been incorporated in business strategy.

The *one-price* policy has become almost the unanimous practice of retail merchants in the United States. According to this policy, the retailer decides upon the prices to be charged for his wares, and all customers pay the standard prices. Shrewd customers and dull customers, rich customers and poor customers alike pay the standard price for each good. Higgling with the merchant has been entirely eliminated. But this achievement has not been reached in other fields of trade. Wholesale trade and manufacture for the most part allow room for a great deal of higgling in the market. Different prices to different customers prevail. Often the seller asks a very high price, in the expectation that he will have to come down in order to come to terms with a buyer. Purchasing agents of large concerns become expert in getting lowest possible quotations from manufacturers and dealers. In so far as competition is concerned, either the one-price policy or higgling is a competitive practice. They are simply two different methods of competition. And in general, the one-price policy affords a more sound

basis for business practice. Such a policy insures fair and equal treatment to the weak buyers as well as the strong. It standardizes business conduct. Moreover, it enables sales effort to concentrate on quality and service rather than upon petty disputes over price concessions to individual buyers.

Local price cutting is a device by which a large enterprise doing business in several localities seeks to drive out its competitors in one of these localities. In the one locality, the large concern puts the local selling price extremely low, even below the cost of production. This means selling at a loss in the competitive locality, but this loss is made up by charging a high price throughout the rest of the country. After the local competitors have been driven out of business by the ruinously low local prices, the big concern comes into sole control of that market, and can then boost the local prices to all that the traffic will bear, without fear of opposition. The history of tobacco, oil, and powder companies affords illustrations of these death-dealing price attacks upon local competitors. Louis Brandeis, now a Justice of the Supreme Court, said in 1913, "Americans should be under no illusions as to the value or effect of price cutting. It has been the most potent weapon of monopoly—a means of killing the small rival to which the great trusts have resorted most frequently." Local price cutting is a form of unfair competition, and the result of its action is an elimination of competition and a tendency toward monopoly control. It is both contrary to legal principles and requirements, and hostile to sound economic principles.

Price maintenance is a policy by which large manufacturers seek to prevent dealers from selling their branded or trade-marked products at less than standard prices. Each retailer in any given community is anxious to draw as much trade to himself as possible, and often the most fruitful means of attracting trade is to sell standard brands of goods at cut prices. Chain stores and department stores are particularly prone to adopt this policy. Manufacturers of the branded articles oppose such cut price tactics, on the ground that these tactics weaken the confidence of the public in the fairness of the original standard prices and that the variations in price make for an unstable production and sales system. Manufacturers have often endeavored to fix the resale prices of their products. In some cases they have required retailers to sign contracts whereby they agree not to cut prices. In some cases, they have refused to do further business with retailers who have violated the price standard. From an economic standpoint, price maintenance offers the advantage of stability. It affords a standard profit margin calculated to enable the average concern to make an attractive profit. But it places a burden upon the consumer whenever a large concern, which by virtue of the economies of large scale selling, could and would sell at cut prices, is forced to sell at arbitrary high prices. Economically speaking, price maintenance aids the producer but may do so at the expense of the consumer.

From a legal standpoint, the fixing of a standard retail price is

approved, but not all methods of enforcing the standard are approved. If the manufacturer seeks to compile a black list of all cut price dealers, and uses any sort of spy or detective system to discover the "undesirables," his enforcement methods are illegal. If the manufacturer becomes aware in the natural course of events that certain dealers have cut prices, he may refuse to sell them further supplies. The difference between legality and illegality seems to hinge upon the amount of deliberate spying which is done in order to compile the black list. Price maintenance without the spying is considered a form of fair competition.

Price discrimination involves the practice of a single concern's quoting lower prices to some customers than to others. Price discrimination is illegal when the intent or effect of it is "substantially to lessen competition." The opponents of price discrimination assume that fair competition requires uniformity of prices to all buyers. The issue between price discrimination and price uniformity is a broad and important one. It involves numerous sharp distinctions and clear-cut definitions. The discussion will be taken up under a series of separate headings.

(1) The policies of one price to all customers and of different prices to different customers are equally consistent with fair competition. The retail store which charges one price to all customers is competing with neighbor stores likewise charging one price to all their customers. The one-price policy does not mean that two separate stores charge one and the same price, but that any store taken by itself charges uniform prices to its own customers. Price uniformity of this kind is not incompatible with fair competition. On the other hand, a dealer who higgles and bargains with each of his customers may equally well be following lines of fair competition. Either uniformity or difference in price comports with fair competition. There is nothing intrinsic in either uniformity or difference of price which is antagonistic to fair competitive standards.

But both devices may be turned into harmful uses. They are capable of becoming weapons of unfair competition or of monopoly. The test of both policies is their intent and effect upon competitors. If they are aimed to destroy competitors, they are objectionable from the competitive standpoint.

(2) Certain commodities are sold at a *uniform delivery price*. Cement, for instance, has been sold at quotations f.o.b. destination. The delivery price less freight is the "mill net," or actual price realized by the producer. Suppose in a given locality a person desires to buy a certain product. He may buy from a mill ten miles distant or from a mill 1,000 miles distant. The product is heavy and the freight rate is important. He finds that both manufacturers quote the same delivered price. If he consults other manufacturers at varying distances he finds that one and all quote a uniform delivery price in his community. If a manufacturer cannot match the uniform delivery price, he abandons the market to his competitors. The price uniformity here under consideration is that charged by manufacturers situated in dif-

ferent cities but selling at a common delivery point. This practice means, however, sharp non-uniformity between customers of the same concern located at different selling points. Such non-uniformity is based, not upon actual freight cost from each mill to delivery point, but on an arbitrary freight allowance. The arbitrary allowance may be more or less than the actual freight cost.

Uniform delivery price differs from uniform mill price. The former results in varying mill nets, the latter results in uniform mill nets. The former may result in price discrimination, since some customers pay higher mill nets than others. The latter avoids price discrimination, since all customers are treated alike in the mill net price of a given manufacturer.

(3) Certain commodities have been sold by taking a *uniform basing price*, no matter where the mill base may be actually located. The most familiar instance is the so-called "Pittsburgh plus" practice in pricing steel products. The Pittsburgh plus price would be a delivered price, with deduction allowed for actual freight, the delivered price being made up of the price at Pittsburgh plus the rate of freight from Pittsburgh to destination. Four elements are involved in this practice: (1) the Pittsburgh base price; (2) the all-rail freight from Pittsburgh to destination; (3) the freight paid for actual transportation; (4) the price as a delivered price.

The basing point was Pittsburgh because in the history of the steel industry Pittsburgh was the chief center of production. The "plus" part of the price was the all-rail freight from Pittsburgh to destination. The significance of this device arose from the fact that if a mill in Chicago, or Gary, or Madison, sold to a customer in Indianapolis, the delivery price would not be the price at Chicago or the other manufacturing cities plus actual freight to Indianapolis, but would be the price at a wholly different city, namely, Pittsburgh, plus the freight from Pittsburgh to Indianapolis. It mattered not that the steel had not been shipped from Pittsburgh. A fictitious and arbitrary addition for freight was made to the Pittsburgh basing point. This fictitious "plus" resulted in manufacturers', wherever located, quoting substantially identical prices in any city buying steel. The delivery price was a uniform price, no matter where the steel came from.

But the quoted delivery price was not the net price to the mill, because the mill allowed a deduction from the invoice price, of the actual freight charge from mill to destination. Mill nets were decidedly non-uniform. This non-uniformity in mill net prices was objectionable on grounds of price discrimination. Some customers paid high mill nets and some paid low mill nets, with no justification in actual freight costs for the difference. Price discrimination was the consequence, inasmuch as the customers paying the higher mill nets were the victims of excessive prices for steel.⁷

⁷ The Federal Trade Commission has attacked the uniform delivery price method, whether the form be that used by cement manufacturers or that used by

(4) A *uniform mill net* affords the freest basis for competitive pricing of commodities. Neither of the previously mentioned practices yields a uniform mill net, and for that reason they are open to the charge of discrimination between buyers. When the actual mill is taken as the basing point, and all customers are quoted the same price no discrimination exists. The freight becomes the actual freight cost to destination, and not some fictitious and arbitrary allowance on account of freight. The mill is the center of a market area. This area spreads out from the mill center, the freight cost becoming greater the greater the distance out. The area of one market center will meet the area of some other market center. The boundary between the two will be that point where freight costs to either mill are equal. Neither mill can step over into the territory of a rival in another city in another market area without sacrificing a certain amount of its profit. The natural market area for each center will be that area within which the mills of that center can sell for less, actual freight considered, than can the mills of any other producing city. *Actual freight costs* will determine the boundaries of the natural market area for any given producing center.

But when uniform *delivery* prices are charged, the market areas will be quite different. Fictitious freight allowances will then determine the ability of widely scattered producers to sell in a given market. Under these conditions, a free and competitive market can scarcely be said to exist for consumers. The consumers of steel could not freely compete with each other *at the point of manufacture*. They were always held off at arm's length and denied accessibility to the market at manufacturing centers. The barrier which held them off was the exclusive quotation of delivered prices. The buyers knew what delivered prices were, but they did not know readily and certainly what mill net prices were. Lacking this knowledge and lacking access to the manufacturing center as a market, they were not in a position to bid against each other in competition for steel products. Buyers cannot bid and compete against each other unless they can go to the mills and buy at the mills at the mill prices. Uniform mill prices to all customers of a given mill alone give rise to a completely free market. Such a market is free from the charge of price discrimination or of unfair competition.

These considerations will be clearer if a description of a free competitive market is given. A competitive market assumes a body of buyers and a body of sellers coming together, each endeavoring to buy

steel manufacturers. Economic as well as legal testimony has been utilized in deciding whether such price tactics are fair competition. The case against the cement manufacturers has been decided favorably to the manufacturers, but the case against the steel manufacturers has been decided adversely to the Pittsburgh plus practice. The manufacturers of steel have been ordered to cease and desist from the practice. For special data, see H. P. Willis and J. B. Byers, *Portland Cement Prices*; with criticisms by F. A. Fetter, *American Economic Review*, December, 1924, and J. Viner, *Journal of Political Economy*, February, 1925. See also testimony and Statement of Case, in Federal Trade Commission vs. United States Steel Corporation and other manufacturers of steel, Docket 760, Volumes I and II; John R. Commons, *American Economic Review*, September, 1924.

or sell on the best possible terms, independent of conspiracy or collusion, and amply informed as to conditions of supply, demand, and prices bid and asked by all other competitors. Three indispensable characteristics of a free market stand out. First, there must be accessibility to the market. This means not merely physical access to the place but legal access to the rights of offering or asking prices at the place. Accessibility implies legal rights as well as physical visitation. Second, there must be independent action, freedom of choice. Buyers and sellers must have no common understandings, agreements, or powers which put fear or favor into their dealings. Third, all parties must have adequate knowledge of trade facts. Such knowledge must include information on what other buyers are paying in that market. Now, these characteristics are not fully met in a market operating on the basis of uniform delivery quotations. Accessibility to the mill market is denied by the device of quoting prices only at delivery points. Complete freedom of action is infringed by the policy of not having a mill quote prices based on actual cost but prices based on a fictitious freight allowance. Knowledge is impaired by the difficulty, if not impossibility, of ascertaining the actual mill nets. These faults are avoided by a market resting upon mill net prices quoted uniformly to all customers of the same concern.

(5) *Uniformity with respect to time* is a price policy in the direction of stability. For a period of years, the United States Steel Corporation maintained a steady price of \$28 per ton for steel rails. Competitors raised and lowered their prices with changing business conditions but this corporation held steadily to a constant price. Such a policy makes for stability and certainty in business relations. Large scale business has in many cases endeavored to sustain stable prices in order to minimize risk and fluctuation in the trade.

Such endeavors usually meet with approval during periods of rising prices, since the dealers practicing price stability are practicing price restraint. But the endeavors are likely to meet with condemnation during periods of generally falling prices, since the dealers practicing price stability are then holding prices somewhat above the natural competitive level. Price stability by joint action of members of trade associations has been attempted. The reduction of risk is an economic gain, but the policy may easily reach over into forbidden fields and become an instrument for eliminating and suppressing competition.

(6) *Discounts from uniform list prices* are a common feature of American trade custom. Three main forms of legitimate discount may be noted. The first is a trade discount made only to recognized wholesalers or retailers or other buyers. In certain lines, retailers have formed coöperative purchasing associations in order to take advantage of trade discounts to wholesalers. The manufacturers have refused to give the discounts to such coöperative associations, on the ground that these are not bona fide wholesale dealers. The courts have upheld the right of manufacturers to refuse to sell to such coöperative purchasers at a discount. Trade discount is closely interwoven with quantity discount.

Discount from list prices to large quantity buyers is a legitimate discount policy. The coöperative retail purchasers mentioned above were anxious to buy in large quantities so that they might take advantage of quantity discounts. With regard to the effect of trade or quantity discounts upon fairness of competition, it may be observed in general that such policies are fair if they are applied uniformly to all buyers. If there is no discrimination between customers in applying discounts, the practice is legitimate. The third form of legitimate discount is cash discount. If cash discounts are uniformly allowed to all buyers of the same class, competition is fair. The three main forms of discount, trade, quantity, and cash, are fair and competitive if there is no discrimination between buyers of the same grade and class.

(7) *Uniform nominal prices* are often vitiated by rebates and inside reductions. Railroad rebates have long been branded as illegal and unfair. Rebates of insurance commissions are unethical and in many states illegal. Splitting commissions is frequently practiced by salesmen in order to clinch the order of a difficult buyer. Inside prices as special favors are unfair and illegal, although doubtless often practiced in the trades. Inside prices are often effected by giving the regular price but presenting the buyer with a bonus of extra goods. Such concessions are the equivalent of outright price reductions. Discriminations of these types tend to handicap the small buyer and to favor the large buyer. A careful authority has stated: "As matters now stand, the inside price problem is the most disturbing element in business. More of the evils of unfair trade can be traced to this as a cause than to any other single item."⁸

(8) *Uniform price information* may be supplied all members of a trade association. Such information may be legitimate if it applies to prices of closed transactions and refers to unidentified parties. It is illegitimate, however, if it applies to quoted prices, or to identified parties. Knowledge of prices at which sales have been consummated is one thing. Exchange of prices proposed to be quoted is quite a different matter. Prices of the latter type would result in elimination of competition, according to the theory of the courts and the law, since each dealer would try to raise his prices to the highest level attained by any dealer. The quoted prices might be higher than actual prices and the effort to rise to the quotations would result in prices above the competitive point. *Compulsory secrecy on prices which business expects to ask on sales in the future* is held to be essential to free and fair competition. Information on costs, production, and other matters of common interest to members of trade associations, may be collected and disseminated, provided it does not have the result of price fixing and lessening of competition. The information as such is legitimate; the purpose for which it is used is the criterion of its fairness.

Abstract Competitive Price versus Reasonable Price.—The trend of economic and legal opinion has been toward an approval of competi-

⁸ Paul H. Nystrom, *Economics of Retailing*, p. 299.

tion as a cure-all for economic ills. The effort of legislators has been to frame laws which would require an abstractly competitive price. It has been assumed that the goal of trade policy should be to guarantee competition as such, and that once competition is enforced, all consequences are bound to be beneficent. Competition has been overrated perhaps, as a magic wand which could bring about universal good. A tendency has appeared more recently to aim at a reasonable or fair price, somewhat regardless of its purely competitive quality. Reasonableness of price is a concept recognized in rate making for public utilities, and in price fixing for government purposes. Reasonable value and marginal and bulkline costs enter into the calculation of reasonable price. If courts, commissions, and legislators go back of an abstractly competitive price and inquire into the reasonableness of the price, it is likely that material differences will appear in the regulation of price discrimination and unfair competition. The loose assumption that abstract competitive price is in the very nature of things reasonable price is now open to some question. To secure reasonableness of price it may be necessary to go beyond the mere guarantee of free and fair competition. An evolution of economic and legal opinion in the direction of a demand for reasonableness as well as competitive qualities appears to be in process.

Price Policies and the Tendency Toward Monopoly.—The nature and extent of competition must be viewed as an evolutionary process. Competition is not the same yesterday, today, and forever. It is an institution susceptible to change, development, and extension. The modern market is neither freely competitive nor completely monopolistic.⁹ Whichever of the hundreds of branches of industry and trade may be chosen for investigation, it is quickly found that there is both an element of competition and an element of monopoly. Partial competition and partial monopoly are inextricably intermingled. Monopoly, like competition, is always a question of degree. One hundred per cent monopoly and one hundred per cent competition are equally hard to find. It is always a question of more or less, and the proportions vary from month to month and year to year in each field of trade. The nearest approach to full monopoly occurs in such fields of natural monopoly as railroads, anthracite coal, and municipal water, gas or electricity supply. But even in these branches of natural monopoly, there are limits to monopolistic power, and if these limits do not always

⁹ The following statement of the Comptroller of the Currency, D. R. Crissinger, in April, 1921, is interesting in this connection: "Manufacturers, jobbers, wholesalers, retailers, laborers—are all in some sort of combination to frustrate this fundamental law of economics (i.e., supply and demand). Each is out to 'get his' first. These combinations,—gentlemen's agreements, or what not—have gotten prices of things to the point where there is no relation between cost of raw materials and cost of production; no relation between cost of production and cost to the consumer; in short, where there is no relation between value and selling price." Due allowance must of course be made for the sweeping character of such a generalization. See also F. W. Taussig, *Quarterly Journal of Economics*, Feb., 1919, p. 238.

appear in terms of potential competition, they then present themselves in terms of public regulation.¹⁰ After a detailed examination of many forms of business, C. R. Van Hise draws the broad conclusion: "The foregoing description of the situation cannot but convince any man who will look the facts in the face that the blind faith that prices are adequately controlled by competition in the United States is no longer justified, if indeed it ever was justified. Unrestrained competition does not as a matter of fact exist for many articles, except to a very limited degree at the present time. Everywhere there is restraint of trade by agreement or combination, either lawful or unlawful." A comprehensive view of the new economic situation is given by Woodrow Wilson as follows: "There is one great basic fact which underlies all the questions that are discussed on the political platform at the present moment. That singular fact is that nothing is done in this country as it was done twenty years ago. We are in the presence of a new organization of society. We have changed our economic conditions absolutely from top to bottom."

Monopoly in all forms and degrees is typically characterized by a control over prices, and this price control is made possible by control of supply. "A partial monopoly exists," says Carver, "whenever an organization exercises sufficient control over the supply of anything to enable it to fix its prices, even within a narrow zone, independently of competition."¹¹ Concentrated business estimates the price at which a certain quantity of goods can be sold to yield the highest net profit, and proceeds to produce or contract for only that limited supply. Large businesses, like small businesses, aim ordinarily to charge "all that the traffic will bear." But large businesses are in a position usually to heighten the figure which "the traffic will bear" by refusing to sell the supply which it controls except at its fixed price. If the monopoly uses discretion in setting its price, and avoids overdoing the price-raising policy, it will ordinarily be successful in selling its goods at the increased figure. In weak monopoly organizations the limits within which monopoly price can be held up are especially narrow. In some of the stronger monopolies, price exactions for short periods of time can often be pushed up surprisingly high. The degree of price control will vary widely from industry to industry, and the variation is in fairly close proportion to the degree of control over supply.

Theoretically, monopoly, complete or partial, should be able to elevate prices, and in the popular mind, monopoly suggests profiteering prices more vividly than anything else. It is a moot question therefore: Has monopoly, as a matter of historical fact, actually raised prices? The answer has to be two-sided: some monopolies have taken full advantage of their price fixing powers and have reaped exorbitant harvests; some have effected large savings and economies in production, and have

¹⁰ A. Marshall, *Industry and Trade*, pp. 394-402.

¹¹ Carver, *Principles of Political Economy*, p. 291. See also Ely, *Outlines of Economics*, pp. 200-201; Haney, *Business Organization and Combination*, p. 141.

thereby made possible reductions in consumers' prices without themselves suffering inroads upon profits. Some concrete evidence on the issue is available in the studies of J. W. Jenks, based largely upon the findings of the United States Industrial Commission,¹² and of subsequent government records on industry. His reports show the margin between costs and selling prices both before and after monopoly powers existed. This spread indicates whether the public was given full advantage of economies of business combination, and whether prices were maintained for any length of time at monopoly levels. The following extracts and digests from his conclusions are highly valuable:

1. *Sugar Monopoly*.—"The sugar combination has beyond question had the power of determining for itself, within considerable limits, what the price of sugar should be, low or high, with or without competitors. . . . On the whole, the chart seems to make it perfectly evident that the sugar combination has raised the price of refined sugar beyond the rates in vogue during the period of active competition before the formation of the Sugar Trust, and the two competitive periods during its existence."

"From the time of the organization of the Trust in 1887, for twelve or thirteen years the Trust kept the margin high for more than three-quarters of the time. Since that period, the margin, it will be noted, has steadily remained considerably higher than during the period of most vigorous competition in the few years preceding the organization of the Trust, and during the two periods of vigorous competition since that time. . . . Although they have made excellent profits during the last few years, the margin certainly during the last three or four years can hardly be said to be abnormal." However, in relation to the general price level of all commodities, sugar prices are not higher. Prices of other commodities from 1900 to 1914 show a greater increase than do sugar prices. "The total result seems to indicate that if the sugar combination in the United States has had any direct influence upon the price of sugar, it has been rather to reduce that price than to increase it."

2. *Petroleum*.—"The Standard Oil Trust was formed in 1882. From that time on for a period of eight or nine years, there was only a slight decrease in the margin." From 1892 to 1894, the margin fell considerably lower, and up to 1916, the prevailing margin was not up to the low point of 1894. "Taking the period as a whole, . . . from 1900 to date (1916) it will be seen that this great combination, as practically all of the others, seems not to have raised the price of its chief product to an amount that corresponds to the rise in the price of general commodities." These facts of themselves do not adequately tell the story of monopoly in petroleum. The dividends paid on the outstanding capital stock were in the neighborhood of 30 to 48 per cent annually, and the charges brought against the Standard Oil Company which resulted in its dissolution by a decision of the Supreme Court in 1911 mentioned "enormous and unreasonable profits." The Bureau of Corporations in an

¹² *The Trust Problem*, Chapter VII. Published, 1900; Revised, 1912.

investigation in 1904 and 1905 found that "The Standard discriminates greatly in fixing prices in different sections and in different towns, charging extortionate prices where there is no competition and cutting prices sharply where competition is active. . . . The profits of the Standard Oil Company, particularly on its domestic business, are altogether excessive, and they have been higher during recent years than formerly. The real source of the Standard's power is not found in the rendering of superior service to the public, but in the long continued use of unfair methods of competition." After the dissolution, Standard Oil stock quickly rose more than three hundred points, indicating the faith that the dissolution would not impair the industry's power to earn large profits. Federal Trade Commission reports indicate that oil profits during and after the war were highly liberal.

3. *Steel*.—The United States Steel Corporation was formed in 1901. According to Jenks, "After the formation of the United States Steel Corporation . . . a new policy seems to have been adopted—that of seeking good profits, but not extraordinary ones. . . . The effect of the United States Steel Corporation seems to have been primarily to steady prices and to maintain more nearly a rate of prices of the finished product dependent upon the costs of the leading raw materials so far as that can be readily determined." Steel prices have not moreover risen as much in the period 1900-1914 as the prices of commodities in general. In spite of these facts, a study of earnings and prices of the Steel Corporation seems to warrant the brief conclusion stated by Van Hise: "Excessive prices; these have resulted in enormous earnings."¹³ The war years brought generous profits to the steel combination. The Federal Trade Commission found that the profits of the United States Steel Corporation rose from about \$77,000,000 in 1912 to over \$478,000,000 in 1917.

These brief comments indicate a wide variety of effects of business combinations on prices and profits. In many cases, the lines of industry in which a high degree of combination has prevailed have maintained prices lower relatively than the average prices of all commodities. Nevertheless, the predominant fact has been liberal profits, often excessive profits, made possible in large degree by the ability of leading corporations to influence prices. Jenks concludes that "The result has been to establish fairly generally the business policy of not attempting to secure anything like a complete monopoly of the market, but rather for the combination to fix its prices at such a rate that it may secure under normal conditions substantial profits while its competitors are still able to live and prosper."¹⁴ Court decisions have generally confirmed the charges of unwarranted price policies and industrial investigating commissions have reported to the same effect. Economists for the most part take a stand essentially similar to that of J. A. Hobson when he declares, "But a trust is always able to charge prices in excess of

¹³ *Concentration and Control*, p. 140.

¹⁴ *The Trust Problem*, p. 178.

competitive prices, and it is generally its interest to do so,"¹⁵ and that of R. T. Ely, when he writes, "The conclusion which we reach then is that monopoly prices are generally higher than competitive prices. . . . The higher the average of well-being, and the more readily they spend money, the higher will be that price which will yield the largest net returns. We have these conditions meeting in the United States. We have a high average of well-being, and a great readiness in the expenditure of money, and consequently we have a high monopoly price."¹⁶ Large combinations of capital have been exceedingly reluctant to pass on to consumers the full benefit of economies and efficiencies of production. Experience has taught monopolies, partial or otherwise, the expediency of exercising monopoly influences over prices within much narrower limits than were attempted during the period of first formation of great business combinations.

Monopoly and Class Price.—Business combinations have developed, moreover, a practical method of adapting price policies to all classes, grades and varieties of consumers. Each grade of consumer is offered a grade of commodity particularly calculated to stimulate demand in that level of consumers. In almost all kinds of commodities, some people want the very best, some want the best, some want a good grade, some want "seconds." Some want fancy style, some want utility, some want certain combinations of the two. The price which each grade of consumer can be persuaded to pay for the most attractive grade of goods is a matter for painstaking calculation. Instead of using the advantage of its great influence in determining a single price, the partial monopoly frequently gives its attention to working out a set of prices to cover the demands of varieties of consumers. Instead of a uniform monopoly price, a scale of monopoly prices takes the field, each catering to a special class of buyers, and figured on the basis of "all the traffic will bear" for that class. Often the so-called superior grade of goods is only something of about the same quality, dressed up in a finer appearing package, and bearing an aristocratic brand. The superfine article must radiate a certain atmosphere of exclusiveness in order to appeal to exclusive people, and must exhibit an élite style in order to arouse buyers of fastidious tastes. With the quality and style of the various grades of goods nicely calculated, prices are attached which should attract enough buyers to absorb the quantity offered by the business combination. Moreover, corporations have sometimes attempted to formulate price policies which would take advantage of the fact that some buyers can afford to pay more for the same article than others can. This principle found its greatest acceptance probably in the rebates of railroads. The railroads, before drastic regulation took effect,

¹⁵ *Evolution of Modern Capitalism*, p. 160.

¹⁶ Ely, *Monopolies and Trusts*, pp. 136-137. See also Taussig, *Principles of Economics*, Vol. II, pp. 112-113; J. B. Clark and J. M. Clark, *Control of Trusts*, pp. 12-13; Van Hise, *Concentration and Control*, p. 84; Haney, *Business Organization*, p. 137; Macrosty, *Trust Movement in British Industry*, pp. 335-337; E. Jones, *Trust Problem in the United States*, Chapter XI.

made it a common practice to charge different shippers different freight rates for the same railroad service.¹⁷ The price policy may thus easily become what each individual will bear, or what a group of individuals of a certain grade will bear, instead of what the general traffic will bear. This gradation of prices to suit gradations of buyers is an innovation accompanying large scale business, and is primarily attributable to the discovery by the monopolist or semi-monopolist that only by such a device can he reap the largest net gains.

Monopoly Price and What the Traffic Will Bear.—The monopoly price for each grade of goods, or the monopoly price for all the articles in an ungraded industry, is the outcome of an elaborate mathematical calculation. A large quantity of goods selling at a moderate price may yield more net profit than a small quantity of goods selling at a high price. Monopoly price is not the highest price at which some goods can be sold, but is the price which will sell that quantity of goods yielding the largest net profit. Assume a commodity which costs one dollar to produce. If the selling price is made \$1.50, the total sales may be 1,000 articles. The net gain would therefore be \$500. But assume the price is put at \$1.40, and that at this lower price the volume of sales is 1,500. Obviously the net gain at the lower monopoly price is \$600. This illustration will suggest the fact that a multitude of combinations can be figured out, and that some one combination of selling price and volume of sales will yield the maximum net revenue. Generally speaking, large business combinations prefer to lean toward as small a volume of sales as possible at as large a price as possible, in so far as that is not inconsistent with the maximum net gain for the industry. Enormous production at the lowest possible prices is not sought after so much as limited production at prices high enough to yield liberal net profits. This fact has been the basis for the repeated accusation brought by production engineers that "if we could harvest more dollars by producing fewer goods, we produced the fewer goods."¹⁸ To the extent that this policy is in vogue, it brings a private net gain at the expense of a net social loss. It is scientific restriction of production which yields maximum business profits but which furnishes society with too few goods at too high prices. Hence, to charge what the traffic will bear is a policy which is capable of bringing either social good or harm, according as it is applied.

Monopolies and the Steadying of Prices.—A frequent price achievement under large scale business is the steadying of prices. For example, from 1901 to 1916, the United States Steel Corporation maintained the price of steel rails steadily at \$28 a ton. Other large corporations make it a policy to raise prices somewhat more slowly than the general market rise during a period of increasing prices, and to lower prices less swiftly

¹⁷ Refer to A. Marshall, *Industry and Trade*, pp. 415-417, for further explanation. See also Ely, *Monopolies and Trusts*, pp. 108-118.

¹⁸ H. L. Gantt, *Organizing for Work*, p. 24. See also Van Hise, *Concentration and Control*, p. 85, and Jenks, *The Trust Problem*, p. 63.

and less sharply in a period of falling prices. Industrial combinations which own and control their own sources of raw materials, such as coal or iron mines, are particularly able to steady their selling prices because they are in a position to regulate their costs of production more evenly. Some semi-monopolistic corporations, however, have an unsteady effect on prices. For instance, from time to time a newly formed combination seeks to establish itself in the good graces of buyers by starting out with a price below the market level. After a certain amount of good will is built up, the combination stealthily elevates its prices to all that the traffic will bear. In the course of the transition, the other producers and dealers in the field are face to face with anything but a steadying influence. Another class of big combinations have been found to fix their prices so extremely high that the exorbitant profits have invited competitors to enter the field. Then has ensued a price war and cutthroat competition, all of which has caused prices to go down from the former great heights to a point equal to the cost of production, and even for a time below the cost of production. It is safe to state, however, that this condition of violent price fluctuations occurred principally in the early years of experience of business combinations, and that the experience thus dearly bought has persuaded many business leaders to avoid extremes of monopoly price likely to invite new competitors to engage in bitter price wars. On the whole, therefore, the later periods of large scale business have been marked by an endeavor to exert a steadying influence on price levels, and to avert violent fluctuations.

Mechanism for Exertion of Monopoly Influences on Price Policies.

—The business mechanism for exerting monopoly price influences varies widely. In some lines of commerce, definite centralization of management occurs, and trusts, corporations, holding companies, mergers, and amalgamations take the place of former separated establishments. The common principle in such business concentration is a definite centralization of management. Plants and companies which formerly were independent and sovereign become branches of a centralized management. Price policies in such companies are formed by the central management, and the constituent companies and plants direct their price policies in compliance with the uniform policies laid down by the central management. There is another great class of price agreements in the nature of understandings entered into between independent companies. Each branch of industry, each line of commerce, each field of production, almost without exception, has a business association of some sort. These associations serve a great many purposes, some of them constructive and some tending toward the fixing of excessive prices and the undue restraint of trade. The history of price agreements shows many forms of understanding or bargaining entered into for the purpose of putting prices up to all that the traffic would bear. The "Gary dinners" which maintained a tacit understanding among steel producers as to what prices would be charged; "any number of dinner and luncheon clubs and

reunions and general understandings, winks, and telephone messages,"¹⁹ mutual understandings between anthracite coal operators or big meat packers as to the distribution of business and price quotations, joint action among dealers in building supplies to charge contractors exorbitant prices for cement or brick, common price terms among wholesale grocers or among druggists,—in these and other ways, price agreements have been maintained at different times and in different degrees in most lines of economic activity. Agreements in the form of pools were at one time widespread. Pools involved definite agreements either to divide the product into quotas for each producer who belonged to the pool, or to divide the quantity each producer was to sell or the territory in which he was to sell, or to put all profits of all companies into a common fund to be shared ultimately by the several companies on an agreed pro rata plan, or any combination of these policies. These agreements of one sort and another have run a harsh gauntlet of laws and court decisions, and have been generally condemned in so far as they result in undue restraint of trade, or unfair and unreasonable prices.

Trade associations have, however, found it possible to render most important services without as a usual thing indulging in illegal price practices. They provide for an exchange of information about the basic facts of production costs, market conditions, trade statistics, credit ratings, standardization of qualities and grades, freight and traffic matters, labor policies, trade legislation, insurance rates. Trade associations were encouraged during the war as a medium by which government agencies could direct industry effectively toward meeting war time conditions. They furnished a definite organization through which the War Administration could communicate its wishes to the hundreds of thousands of individual companies the country over. The advantages of coöperation became so apparent that trade associations did not wane after the war, but grew in strength and membership. The coöperative efforts of trade associations to supply information on production costs have led to greater uniformity in prices in many cases. The trade information is often kept strictly in the hands of members, with the result that although there may not be collusion or definite agreement on price policies, there is created a fairly uniform price control. Each man acts upon the same exclusive information as the other members of his trade association, and the uniform price action resulting has substantially the same effect in many cases as though it were the outcome of collusion among traders. The legal status of such trade association policies is not yet clearly determined. It would appear reasonable and possible to retain the constructive services and coöperative features of trade associations and to discard whatever undue monopoly influences attempt to assert themselves.²⁰

¹⁹ Samuel Untermyer, *Hearings Before Senate Interstate Commerce Committee*, V, p. 214.

²⁰ See special reports of Federal Trade Commission in 1921 on *Trade Associations and Open Price Associations*. Also J. E. Davies, Commissioner of Corporations, 1915, *Trust Laws and Unfair Competition*, Chapter XI. The legal status of

Limits to Monopoly Influence on Prices.—Efforts to maintain monopoly prices are subject to certain limits and restrictions of a very important nature. Economic and political forces combine to put checks upon monopoly ambitions after they have passed certain limits.

1. *Limit in Demand.* A monopoly in a necessity of life may at times drive prices to extraordinary heights because people cannot do without, no matter what the price. The era of specialized manufacture has brought into the market so many articles which were at one time luxuries or comforts, but have become by custom and habit virtual necessities that monopoly in these lines can count upon a fairly stubborn and insistent demand.

2. *Limit in Potential Competition.* If a monopoly pushes the prices of goods so high that profits are great, competitors will probably be drawn into the field. The new competitors will then engage in a price war with the old business combination, and after a time, the combination may buy out, or crush the competitor, or the competitor may survive, and continually harass the original combination with its competitive prices. Although potential competition is existent and may possibly enter the actual field at any time, nevertheless prospective competitors are likely to think twice before sinking their time and money in many lines of business, realizing full well the ruthless attitude of many big companies toward venturesome competitors. Inertia, too, works against a ready entrance of competitors into lines of business where prices and profits are high. Hence, although potential competition serves to keep monopoly efforts within certain limits, those limits are highly variable and indefinite.

3. *Limit in Possible Substitution.* If the price of beef runs too high, people can eat mutton or pork. If gas rates are put too high, electricity is likely to come in. If the price of one form of article becomes exorbitant, buyers can pass it by and purchase substitutes. Monopolists who experiment with prices face the imminent danger of losing trade altogether by driving buyers to use articles which will give practically an equivalent of satisfaction and utility.²¹

4. *Limit in Public Control.* When trusts and all forms of big business first made their appearance, the country was naturally bewildered to know how to handle the new phenomena. While legislatures were experimenting with various types of laws, and courts were maturing judicial viewpoints, it was possible for monopolies to take advantage of the situation, and indulge in practices of unfair competition, price discrimination, and price boosting which have later come under the ban of the law. The Sherman Anti-trust Act of 1890 has been interpreted as disapproving any conspiracy or monopoly in undue and unreasonable restraint of trade. After the law had been on the statute books for

the open competition and open price policies of trade associations is still indistinct. See F. D. Jones, *Trade Association Activities and the Law*.

²¹ See J. A. Hobson, *Evolution of Modern Capitalism*, pp. 230-235; J. B. Clark and J. M. Clark, *The Control of Trusts*, pp. 28, 123-127.

twenty years, the Supreme Court read into the act "the rule of reason," by which it interpreted the Act to prohibit, not all restraint of trade, nor all monopoly, but only those interferences with trade and prices which are *undue* and *unreasonable*. There have been people who have continually charged that virtually all big business is bad business and dangerous business, and ought to be dissolved; and simultaneously there have been people who have steadfastly maintained that big business is the natural institutional evolution of this day and age, and that its economics and advantages can be retained while its evils and dangers can be regulated out of existence. The general philosophy of both groups has been in evidence in recent judicial decisions and government legislation. The most notable pieces of concrete legislation by the Federal Government have been the Federal Trade Commission Act and the Clayton Anti-trust Act, both passed in 1914. The Federal Trade Commission investigates trade practices, orders offenders to refrain from methods of unfair competition, publishes facts as to costs, prices and profits for various lines of industry and trade, enforces the provisions of the Clayton Act, keeps informed as to the extent to which companies carry out the decrees of courts under the Sherman Act, and investigates combinations for foreign trade. Chiefly, the weapon which the Federal Trade Commission wields is investigation and publicity of the facts of business, and coöperation with business men in the direction of compliance with federal law without expensive litigation in the courts.

The Clayton Act forbids monopolistic price discriminations, new holding company formations, and interlocking directorates. The last two provisions are especially aimed at big business as such, and rest on the assumption that size itself is a menace. For the most part, outside of these two provisions, both the Clayton Act and the Federal Trade Commission Act aim not to destroy big business, but to make sure that the practices and price policies of business, whether large or small, shall be fair, and reasonable, and socially beneficial. They aim to make destructive competition impossible, to put under the ban of the law the modes of warfare between business units of all sizes which are predatory and vicious. And simultaneously they tend to preserve a large field for concentration of business, for moderate monopoly influences and advantages, for constructive coöperation and for competition which leads to the survival of the most efficient. The possibility of public control serves therefore as a limit to monopoly excesses and to unfair price policies.²²

Natural monopolies, such as railroads, waterpower resources, gas and electric service, are so thoroughly associated with the public need that they have generally come within the scope of a more rigid form of public control. The Interstate Commerce Commission very closely supervises the pecuniary policies of railroads. There has been powerful agitation of late to declare the coal industries and the meat industries public utilities and to subject them to a public control somewhat similar to

²² See E. Jones, *Trust Problem in the United States*, Chapters 14-15.

that already exercised over the railroads.²³ Public Service Commissions are common devices for the regulation of lighting, heating, and municipal transportation services, and assert authority in varying degrees over rates or prices in the industries under their jurisdiction. Industrial concentration in the basic industries is already leading many careful students to raise the question whether concentration is socially safe except as it is subjected to a substantial measure of public regulation and control. The maturing of opinion upon this issue will undoubtedly hinge largely upon the manner in which concentrated business orders its policies, with regard to prices and all matters tinged with a public import, during the next few years. Unless the device of publicity and prohibition of unfair competition, as now administered by the Federal Trade Commission, serves to maintain a policy of price moderation and to eliminate the grosser cases of profiteering, the next degree of public control will be demanded by the public, namely outright government regulation similar to that exercised through the Interstate Commerce Commission or the Public Service Commissions.

The record of profiteering, as reported by various government authorities, especially during the first years of the war and during the months closely following the armistice, has left grave doubts in the public mind as to the willingness of big business concerns to moderate their price and profit policies within satisfactory bounds. Moreover, the experience of the government with price fixing during the war had a sufficient degree of success to make it fairly clear that at any time when the step seems desirable, the government can effectively create the governmental machinery suited to price fixing in times of peace. The war demonstrated that price fixing is not an economic impossibility. Once price fixing has been proved possible of achievement, it is always ready at hand as a device to be called into being to correct price abuses which creep into private business combinations. Comparisons made by the War Industries Board indicated that the average prices for controlled articles increased during 1917-1918 much less than did the prices of uncontrolled articles.²⁴ Although the methods of price fixing were not uniform between all bureaus and departments, nevertheless in the main they adhered with reasonable closeness to the objective laid down by President Wilson on July 12, 1917, namely, that the fixed price should be sufficient to "sustain the industries concerned in a high state of efficiency, provide a living for those who conduct them, enable them to pay good wages and make possible expansions of their enterprises." Price fixing in time of peace would be handicapped by lacking the equivalent of the high spirit of patriotic coöperation from business men

²³ The Packers' Control Bill, passed by Congress in August, 1921, established regulation of the meat packers to be administered under the Secretary of Agriculture. The law provides for uniform accounting by the packers, for publicity of the packers' affairs, and for definite powers of the Federal Trade Commission to investigate the industry.

²⁴ War Industries Board, *Fluctuations of Controlled and Uncontrolled Prices*, p. 8.

which prevailed during the war emergency, and hence is not likely to be resorted to during peace times except as the need is urgent. The possibility of price fixing hangs as a kind of tacit ultimatum to monopolists who might like to boost prices unduly, and hence serves as an important limit to monopoly price policies.²⁵

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²⁵ See Carnegie Studies: *Prices and Price Control During the World War: American Economic Review Sup.*, March, 1919, pp. 233-276; F. W. Taussig, *Quarterly Journal of Economics*, Feb., 1919, p. 238.

PART IV

DISTRIBUTION AND RELATED PROBLEMS

CHAPTER XII

THEORY OF PROFIT AND RISK TAKING

Profit in the Pure Economic Sense.—Profit is loosely and popularly thought of as the excess of gross returns over cost. This loose concept is divided by the economist into three separate elements. First, profit contains an element of pure interest, since in part it is a price paid for the use of capital invested in the business. Second, profit contains an element of wages of management, since in part it is a price paid to the business man for directing and managing the enterprise. Third, profit contains an element of surplus over and above the first two elements, which is the net or pure profit of the business. This pure profit has been attributed to a number of causes, but principally to the risks involved in business undertakings.

Such a division of gross profit into its elements was originally made when the dominant type of business enterprise was not the modern corporation but the individual who owned and managed his own business. In this earlier type of enterprise, the gross profit made by the owner-manager consisted in part of a payment assigned to interest return on his capital invested in the business, in part of a payment assigned to salary or wages of management for his services in running the business, and finally in part of a pure profit assigned to reward for risk in shouldering the responsibilities of business activity. Where the owner-manager type of business man survives in present-day enterprise, this division of gross profit into a wage factor, an interest factor, and a risk factor is comparatively simple.

Where, however, the owner-manager has been displaced by the corporate type of enterprise, the division of gross profits into its main elements is more complicated. The interest element would be that part of dividends which represent merely the price paid for the use of capital and savings. How much of profits should be imputed to this interest factor is difficult to ascertain for the reason that actual invested capital differs so greatly from capital stock. Imputed interest is theoretically a distinct concept, but as a matter of concrete measurement, it is exceedingly elusive. Likewise, the wages of management factor is difficult to measure. The management of corporations is largely in the hands of

salaried executives, and their salaries are deducted as a cost before profits are computed. Consequently, such salaries do not figure even as a part of gross profits. But the management is by no means entirely in the hands of the executives. Some part of it is distributed among stockholders, especially the large holders or the "insiders," the board of directors who may or may not be stockholders, and the bankers who exercise a supervisory influence by virtue of their right to scrutinize the security behind their loans. Thus, imputed wages of corporate management, although clear as a theoretical concept, are exceedingly difficult to calculate as a concrete thing. Finally, the risk factor in profit, or the pure profit element, is a complex matter. The risk settles largely upon those who have capital actually invested. But the ability of the hired management in shouldering these risks is more vital by far than any ability displayed by the stockholders en masse. The risk factor, although distinct as a theoretical concept, is hard to measure in actual corporation finance. The three elements in gross profits are definite theoretical notions but highly elusive statistically.

Profit Viewed as a Residual Share.—From the viewpoint of the individual business, profits are a left over share after all other shares have been paid. The business man pays labor, capital and land charges, and after such costs have been deducted from income, if there is anything left, the residue is considered as profit. Consequently, the profit is often termed the "residual" share.

Because profit is residual, it is likely to fluctuate more than other shares in production. A certain minimum of interest, wage, and rent costs must be paid by the business man, even though his income has fallen off sharply. Instead of making a profit, he often suffers a loss. His profit then is negative. His residual share is extinguished. Business men are unwilling to undertake this risk of loss, unless they see ahead the hope of gain and profit.

Profit Under Conditions of Static Equilibrium.—The central doctrine of economic theory as to this problem has long been that the residual share in distribution tends to disappear altogether. We may state the conclusion of the theory before we state the specific reasons for the conclusion. The primary conclusion is that competition, to the extent that it is free and unrestricted, tends to wipe out pure profit entirely, and to reduce it to zero. To state the same conclusion conversely, pure profit exists only in so far as there is imperfect competition and delay in the working out of the forces of competition.

The reasoning behind this conclusion involves certain hypothetical assumptions. To begin with, we may postulate an economic condition of "normal equilibrium." This condition rests upon two main characteristics. First, it is characterized by perfect competition. Second, it is characterized by a changeless set of economic forces. In an economic state where there would be no change, there would be no alteration in population, no price fluctuations, no changes in people's wants, no inventions or novelties, no climatic variations, no introduction of new

supplies of land, labor, or capital. In this imaginary state, there would occur the wearing out of old capital but it would be steadily replaced by a proportionate amount of new capital. There would occur the death of the older generation, but such loss would be steadily replaced by proportionate numbers of the incoming generation. There would occur the consumption of old goods, but such consumption would be steadily replaced by a proportionate production of new goods. Exact proportioning of the different factors in production, steady balancing of consumption and production, perfect competition among all factors, normal equilibrium of all price relationships,—these are the outstanding features of the purely fictitious and hypothetical “static state.”

In such an imaginary state, what would be the relation between costs and selling prices? Upon the answer to this question hinges the final doctrine that profit tends to disappear altogether. The essence of the relation is that selling prices tend barely to cover costs of production. Consequently, there tends to be no profit margin left between the two. To put the same idea in other words, where there is no change and perfect competition, market price is the same as normal price. It will be recalled that normal price is the price which approximates the cost of production. At the same time, differences in costs of production between various business men will tend to be ironed out. If any one producer cuts his costs by any means, other producers will follow his example and cut their costs accordingly. With costs to the bulk of producers approximately even, and prices falling to the level of costs, profit margins are squeezed out of existence. The normal rate of pure profit, therefore, tends to be zero.

If prices were to rise above the normal or cost level, immediately business men would plunge into those particular lines of production, put additional supplies of goods on the market, and thus force prices down to the cost level again. Competitors are always watching for such an opportunity. If they should see the least spread of prices above costs, they would immediately hammer prices down again to the cost level. Any margin of pure profit is a golden bone upon which the dogs of competition pounce with ravenous appetite. In the state of normal equilibrium, the prices which prevail are the normal or cost prices, and the profits which prevail are the normal or zero profits. There would be no pure profit in the static state.

Having seen the forces at work in the purely static state, we may complicate the situation by superimposing upon the static state the actual conditions which prevail in the business world. We move from the world of hypothesis and assumption to the world of reality. We move from the static state to the dynamic state. And in the dynamic or realistic state, we find two dominant characteristics which differentiate it from the static state. These two characteristics are, first, imperfect competition; second, constant change. In brief, the two things which we eliminated utterly from mind in postulating the state of normal equilibrium, we now add to the picture. In the world of active business

which we see all around us, we observe the universal presence of the twin facts of *restricted competition* and of *unrestricted change*.

The forces which restrict competition are legion. Chief among them we may mention monopoly, government regulation, business coöperation and association, and joint agreements and understandings. The forces which underlie unrestricted change are likewise legion. Certain of the chief of these may be enumerated: (a) Fluctuations of population; (b) Rise and fall of individual prices; (c) Rise and fall of average prices, i.e., of the value of money; (d) Inventions, scientific discoveries, and improved methods of production; (e) Introduction of new goods for consumption; (f) Variations in climatic and seasonal conditions; (g) Exhaustion of old or discovery of new natural resources; (h) Changes in the wants, tastes, and fashions of consumers; (i) Changes in the efficiency of labor and management; (j) Changes in the proportions which wages, rents, and interest costs bear to the total costs of production.

In this dynamic state, market prices deviate from normal prices. This deviation is the cause of pure profit in the actual world of business. In the midst of change and fluctuation, certain business men find ways and means to cut their costs below the average level. They sell, however, at the high level set by high cost producers. Consequently they enjoy a margin between cost and selling price. This is the pure profit margin. It is born of change, fluctuation, variation, discovery, invention, and progress. But why is it not at once devoured by competition and wiped out of existence, as in the case of the static state? Precisely because competition is imperfect and enfeebled in the world of reality and change. Surrounded with restrictions, interwoven with monopoly, regulated by government, eliminated by business consolidation and coöperation, competition emerges from the dynamic picture a battered and bruised weapon. Stripped of its great vitality, competition cannot promptly hammer market prices down to the cost level. It cannot make actual prices coincide with normal prices. It cannot wipe out the pure profit margin. It cannot reduce pure profit to zero.

But this is not the end of the reasoning. Competition is by no means out of the running, even in the dynamic state. It takes on new forms, utilizes new practices, carries on with new methods. And just because it is present, no matter in how imperfect or varied a form, it persists in asserting its influence in unmistakable terms. Competition establishes a "tendency" for profit to be extinguished in the dynamic state. This tendency moves in the direction of the static state of normal equilibrium. It moves, but never arrives. In the long run it tends to reduce pure profit to zero. In the short run, changes occur which upset the even forces of the static assumption. Competition is frustrated in carrying through the tendency to annihilate pure profit, by the forces of change from without and by the imperfections and restriction of competition from within. The tendency, therefore, for this imperfect competition to extinguish pure profit is always present and

always an important force in the business world. The delays and obstacles in the working out of the tendency are multitudinous. What would be true *in the long run* may never be attained, because in the meantime new changes thrust themselves into the arena and new restrictions upon competition come forward. And yet in the midst of all such delays, interwoven with all fluctuations and changes, omnipresent in all the realities of the dynamic state, the *tendency of competition* to drive market prices down to normal or cost levels and to depress pure profit to the zero point asserts itself tenaciously, inescapably, irrepressibly. It is this fact which classical economic theory emphasizes. It is this fact which business men encounter in the everyday struggle to prevent prices from falling to the point of costs. It is this fact which is brought out vividly by the assumptions of the static state, and by the realities of the dynamic analysis.

To summarize, profit originates in constant change and imperfect competition. It tends to be reduced to the vanishing point under the influence of competition, however imperfect. But under this tendency, it is not actually extinguished, partly because of new changes which constantly intervene, and partly because of the ever-present restrictions upon perfect competition itself.

Profit as Related to Risk and Ability.—Profit has often been considered as a remuneration for risk. Risk is inherent in the perpetual change and fluctuation which characterize the real business world. Any one who undertakes the management and direction of a business must shoulder the risks involved. But he will be willing to do so only under the condition that he expects to be able to secure a suitable reward. This reward, according to this explanation, is pure economic profit.

In criticism of such a theory, we find it obvious that profit bears some relation to risk, but the precise nature of this relation is not made clear by stating that profit is remuneration for risk. It would be more definite, perhaps, to state that profit is secured in spite of risk, not as a reward for it. The business man has no moral claim on profit as a reward for risk taking. He has no natural right to profit as a reward for risk taking. He has merely an opportunity to match his wits against the risks involved, and if he is shrewd and lucky enough, he will make a net gain. The profit is a gain, not a reward. Reward implies that a man has performed some moral act or social service, and is entitled to step up to the bar of justice and claim a reward. Profit should be separated from this whole notion of moral reward. Profit to the economist should be a question of gain in spite of the risks involved in business enterprise.

The only direct way in which risk can be considered a cause of profit is through the effect of risk upon the scarcity of able employers. The risk factor not only deters many men from entering business at all, but weeds out many of those who do enter but later fail. Risk not only scares men away from enterprise but kills out a great percentage

of those who venture to engage in it. Consequently, risk tends always to keep the number of successful risk-takers relatively scarce. Plenty of men can plunge into the responsibilities of business, but only a limited number can emerge from those responsibilities successfully. Scarcity of the ability to undertake business risks successfully enables those who do survive to gain an element of pure profit. The survivors succeed in spite of the risks involved, but the number of survivors is decidedly limited because of the severity of the risks involved. Hence, the final explanation runs in terms of scarcity of a particular factor in production, namely, of competent risk-takers. In this respect, profit comes to be explained by the same principle of scarcity as will be found applicable to the other shares in production. That is, wages are explained by the relative scarcity of the different grades of labor, interest by the relative scarcity of the different grades of savers, rent by the relative scarcity of the different grades of land. So, too, profit is explainable by the relative scarcity of the different grades of business ability in risk-taking.

As will appear later, this risk explanation of profits is not an all-sufficient explanation, but in so far as risk does help to explain profits, the point here insisted upon is that profit is not a reward for risk, but a gain made possible by the scarcity of able and successful risk-takers.

The term "risk" needs further limitation for technical usage. Some kinds of risks are calculable by laws of averages and can be covered by insurance. Insurable risks and measurable risks are a cost of doing business, and are not included in the risk factor which explains profit. The risk element associated with profit is risk which is noninsurable and nonmeasurable. It is pure uncertainty. This kind of risk is the force keeping up the scarcity among successful risk-takers.

Closely interwoven with the preceding explanation of profit, is an explanation which emphasizes that profit is a reward for skill and efficiency of management. Thus Taussig remarks, "Business profits are best regarded as simply a form of wages."¹ In the long run, those business men who persistently and consistently make a profit must do so because of superior ability and not because of pure luck. Many men can plunge in and make profit in a good year, but their gains are offset by their losses in bad years. The temporary profits of good luck are likely to be offset by the sharp losses of bad luck. In the long run, according to this view, luck profits are zero, or even a negative amount. Long run profits flow only to those captains of industry who have the rare ability to surmount the shifting tides of fortune. Profit is, therefore, a reward for rare and superior business ability.

This explanation merges readily into our view of the risk factor outlined above. Both views rest upon the scarcity of high grade ability. The scarcity of ability is in reality scarcity of the ability to shoulder business risks successfully. Ability and risk are two different aspects of the same central phenomenon. To summarize the matter in a sen-

¹ *Principles of Economics*, Volume II, p. 164, 1921 edition.

tence, we may say that profit is made possible because risk makes scarce the number of men who have sufficient ability to succeed in spite of the risks involved in business.

Pure Profit in Final Analysis.—At the outset, gross profit was separated into three elements,—interest, wages of management, and pure profit. In light of the foregoing analysis, it is apparent that this third element closely resembles wages of management. It arises from the scarcity of managers who are able to shoulder business risk successfully. It is a payment directly traceable to the scarcity of the better grades of management. It is, therefore, in last analysis a form of wages of management itself. Pure profit, in large part, is not a thing separate and distinct, but has to be classified under wages of management.

But there is another aspect of pure profit which cannot be identified with wages of superior management. This form is traceable only to chance and fortuitous circumstance. Profit often is due simply “to the breaks of the game.” The recipients cannot claim superior ability or superior shrewdness. They are downright lucky. In fact, there are times when business men cannot prevent themselves from making profits. During a period of rapid price inflation, for instance, business men of very mediocre ability reap a wonderful harvest of profit. They have benefited from a force which they did not create and which they did not control. They took risks, and the wheel of fortune stopped at the right place. Pure profit in this sense is attributable to pure chance.

This view of pure profit, of course, looks at the matter from the standpoint of the individual business. From such a standpoint, company earnings of 30 or 300 per cent may commonly be gained. Such earnings appear in the everyday reports of any number of corporations. But they are by no means the whole story. Let us assume the viewpoint of all industry over a considerable period of years. When we record all of the losses as well as the gains, when we consider the lean years as well as the fat years, will there be any substantial element of pure profit left? Will not the residual share disappear altogether, or even become a negative quantity, an absolute loss? In the opinion of most of the orthodox economists, the answer to these questions is the dismal one. The opinion has commonly been that in the long run and for industry as a whole, pure profit is net loss. It has been maintained that profit seeking is bound to be a losing adventure. This view, of course, is only an opinion. There are no statistical records which can verify or disprove it.

If the opinion be correct, of course it becomes futile to explain the cause of pure profit. It is an empty task to explain the origin of a thing which later on is said not to exist in the first place. If pure profit does not exist in the long run and for industry as a whole, and there is no such eventual share in distribution, we can ignore the permanent existence of pure profit altogether. Our theory of pure profit can, at best, be a theory of a temporary share in distribution received by the individual business.

Profit theory has long been one of the least satisfactory parts of the orthodox economic analysis. If the foregoing approach to a theory of profits seems somewhat indefinite and uncertain, it is because this residual share has never been given a perfect logical position in economic theory. To put the case as definitely as possible, we may say that pure profit may not exist at all in the long run, although facts are wanting for a conclusive answer to this problem. Assuming that it exists temporarily, and moreover only for a certain limited number of individual concerns, it is attributable to two basic causes: first, the scarcity of the ability to shoulder risk successfully; second, the favorable outcome of chance and fortuitous change.

For the purpose of an abstract theory of profit, these various considerations and definitions are necessary. They serve a particular purpose. But the very abstractness and indefiniteness of the reasoning has meant that practical business has been compelled to evolve certain profit terms and concepts of its own. These serve the purpose of actual business reckoning, and are of vital importance in modern business enterprise. They are largely the outgrowth of accounting, and the following analysis explains profit from the standpoint of the modern science of accounting.

Business Profit and Modern Accounting.—The accountant finds that for adequate analysis of business earnings, at least three separate computations are necessary. These are commonly referred to as *gross* profit, *operating* profit, and *net* profit.

Gross profit is the total sales less the cost of goods sold. In calculating the cost of goods sold, the purchase price of merchandise is the chief factor in those lines of business where merchandising is the principal part of the enterprise, whereas the factory cost or direct expenses are often taken as the chief factors where manufacturing is the principal part of the enterprise.

Operating profit is gross profit less the operating expenses of the business. These expenses include such items as labor, rent, and depreciation, but do not include such items as interest, income taxes, or any return on the capital used. Operating profit is particularly valuable as a measure of the efficiency of the executive staff.

Net profit is operating profit less interest, income taxes, and miscellaneous losses not directly chargeable to operating expenses. This final net profit is the amount available for dividends and surplus. It is the net gain of the business from the standpoint of the stockholders or proprietors of the enterprise. The net profit is the real measure of the earning power of the business from the stockholders' point of view.²

² The accountant's concept of net profit is substantially in agreement with the government's concept of net income for the purpose of applying federal income or excess profits tax. Thus, Regulations 65, Article 21, of the Treasury Department, bearing upon the computation of taxable net income, state: "Although taxable net income is a statutory conception it follows, subject to certain modifications as to

The primary service of these accounting devices is that they measure with reasonable definiteness the quantity of profit in a business enterprise. They are measuring devices, and for that purpose, they are indispensable. They supplement the theoretical concept of the economists with an exact, concrete sum of profit. There is nothing necessarily contradictory between the two ways of viewing profit. For purposes of economic theory, one view of profit may be desirable, whereas for purposes of business calculation, a more precise and commensurable view may be essential. The work of the accountant does not displace the work of the traditional economic analysis. The relation is mutually supplementary, not mutually exclusive.³

Since profit in the accounting sense is primarily useful as a measuring device, it is important to know in any given case exactly what is being measured. Profit may be stated as a per cent on net worth or stockholders' investment, or as a per cent on the volume of sales. It may be stated as a lump sum for the business as a whole, or as a lump sum per unit of capital stock or per unit of sales. It may be stated in relation to money values or to physical units. Unless otherwise specified, profit in ordinary business parlance is quoted as a per cent on the stockholders' investment. Thus, if a certain business is said to have earned 10 per cent, it is commonly understood that this means 10 per cent on the capital investment.⁴ This method of expressing profit is the dominating one in the stock exchanges and wherever the money values of corporate securities are being calculated. Financiers, investors, specu-

exemptions and as to deductions for partial losses in some cases, the lines of commercial usage. Subject to these modifications, "statutory net income" is "commercial net income." The statutory computation is substantially as follows:

Gross sales	.....
Other income	.....
	<hr/>	
Total gross income		.....
Cost of goods	.....
Labor, salaries	.....
Rents	.....
Interest paid	.....
Depreciation, etc.	.....
Taxes paid	.....
	<hr/>	
Total expenses and deductions		.....
Net profit after taxes		.....

³ It should be noted that the accountant's "net profit" or net income corresponds with the general term "profit" as used in economic theory. Thus, net profit may be dissolved into the three elements of an interest factor, a wages of management factor, and a risk factor. The risk factor, or pure profits, is not synonymous with net profit, as used in accounting. Pure profit of economic theory is simply one element, namely, the risk element, in the net profit of accounting.

⁴ Profits may be specified as a certain amount per \$100 of sales, or as a certain amount per bushel, or ton, or other physical unit. For various purposes, gross profit or operating profit may be the proper amounts to use instead of net profit. Each of these various concepts serves a particular use and purpose in the hands of accountants and business executives.

lators, demand to know the rate of earnings on the capital in the business. Likewise, from the standpoint of the public, when the accusation of profiteering is made, the accusation is aimed at an exorbitant per cent of earnings with reference to the invested capital. When public service commissions are instructed to allow a fair rate of return to public utilities, the determination of fair rate refers to a fair per cent of profit on the invested capital. In all such cases, the thing measured is per cent of profit on the capital put into the business. This form of statement of profit is the one which will be most commonly required in dealing with profit in the present development of economic theory.

Differences in Profits Among Different Concerns.—Any branch of business shows marked differences in the rates of profits earned by different concerns. All degrees of low, high, and medium profits are to be found.

We may classify these differences in three groups. Group one includes the least successful business enterprises. These are the concerns at the no-profit margin. At best, they earn less than a normal interest return on the investment. Many of them barely meet their costs of doing business. Many of them suffer an actual loss. They are as a group on the borderland of failure. Many will be extinguished entirely, whereas others will recoup their losses in later years and climb to a position of substantial profit.

At the opposite extreme, group three includes the exceptionally successful concerns. In each industry are to be found certain companies which earn extraordinary returns. Their super-profits are decidedly in excess of those earned by the rank and file of business concerns.

Group two lies between the extremes—between the no-profit fringe at the bottom and the super-profit fringe at the top. Here are found the bulk of concerns in any given industry. The majority of enterprises are bunched together in this central group. They represent the rank and file of moderately successful concerns.

The No-Profit Group.—The proportion of business found in the no-profit group varies greatly from industry to industry and from year to year. Available statistics of profits would indicate that in years of fair prosperity, from 10 to 20 per cent of the invested capital in the average industry fails to earn a profit. Even in years of great prosperity, upwards of one-tenth of the invested capital shows no profit. In years of depression, upwards of one-quarter to one-half of the invested capital in many industries may fail to show a profit.

Some idea of this variation from industry to industry and from year to year may be obtained from data on corporation net income reported under the federal income tax law. Corporations reporting no taxable income are classified separately from those reporting taxable income. The group reporting no taxable income do not correspond exactly with the no-profit group of business concerns, but they do correspond substantially. The following table indicates the variations and differences which occur in corporations reporting no net income.

Industry	Per Cent of Total Volume of Business in Each Line Which Earned No Net Income *	
	1921	1922
Agriculture and related industries	44	31
Mining and quarrying	55	36
Manufacturing	36	19
Construction	28	23
Transportation	20	17
Trade	35	20
Finance, insurance	23	20
All industries	34	20

* *Statistics of Income*, United States Bureau of Internal Revenue, 1921, 1922.

The computing of profit and loss in this connection follows the general formula set out in the above footnote to page 203.

Not only are there wide variations between different industries, but also there are wide variations in the average of all industries from year to year. Some notion of these aggregate year to year changes may be gained by studying the volume of business which earned no net income in various years. The following table shows the per cent of the gross business of all corporations which was done by those corporations reporting no taxable net income.⁵

Year	Per Cent of Gross Income of All Corporations Which Was Received by Corporations Reporting No Net Income
1916	7
1917	6
1918	7
1919	11
1920	20
1921	34
1922	20

⁵ *Statistics of Income*, 1922, p. 143. M. C. Rorty estimates that in a year of fair prosperity, about ten per cent of the total capital earns less than a normal interest rate and so belongs with the no-profit group. See, *Some Problems in Current Economics*, p. 125. This estimate is chiefly based upon the special study by J. E. Sterrett in the *American Economic Review*, March, 1916. A slightly smaller fraction in the no-profit group is indicated by David Friday, *Profits, Wages, and Prices*, pp. 41-44. Studies of costs and prices in several industries by the Federal Trade Commission indicate that from ten to twenty per cent of the output comes from concerns earning no net profit. Likewise, F. W. Taussig found that in price fixing in the war period, from ten to twenty per cent of the output tended to have such high costs of production that no net profit could be earned. See *Quarterly Journal of Economics*, February, 1919, p. 225.

In 1921, about one-third of all business done yielded no net profit. In 1917, about one-sixteenth of all business done yielded no net income. This difference between an exceptionally poor year and an exceptionally good year suggests the changes constantly taking place in the relative size of the no-profit group of business concerns.

The existence of this no-profit fringe of business is significant from many economic standpoints. From the standpoint of price, the conclusion to be noted is that prices need not be high enough to cover the costs of this unfortunate lower layer of business concerns. Prices need be only high enough to cover the costs of 80 to 90 per cent of the business done. In price fixing or public utility rate regulation, this means that prices or rates need not be fixed at a point high enough to protect the weakest fifth or tenth of the concerns. Rates need only be high enough to protect four-fifths to nine-tenths of the concerns. In purely competitive pricing of goods, the price arrived at tends to be high enough to afford at least a living profit to only 80 or 90 per cent of the business done. Competitive price, in other words, tends to squeeze out of existence the least effective concerns. From the standpoint of efficiency, the conclusion seems to be warranted that the real struggle for survival of the fittest is constantly going on within this no-profit group. Many will fail outright; many others will return to the fold of profit making in later years. It is here that the battle for life and death is waged. A process of elimination and selection is continually going on. It is persistent and inescapable. It is more drastic in some industries than in others. It is more drastic in some years than in others. But whatever the industry or whatever the year, the weeding out process insistently continues.

The Central Profit Group.—H. L. Seerist has found that in retail clothing stores from 1916 to 1920, the majority of business was done at a profit which closely approached the average profit for the industry as a whole.⁶ The bulk of the business—ranging from 57 to more than 90 per cent, but more often varying from 65 to 70 per cent—gained a profit that was less than 20 per cent above or below the average rate of profit. This central group, comprising the majority of the business, stood between the relatively small number of no-profit concerns at the bottom and the relatively small number of super-profit concerns at the top.

A somewhat similar conclusion has been drawn from the cost studies of the Federal Trade Commission. L. H. Haney concludes from these cost studies of various branches of business, "A majority of plants are grouped not far from the average cost, with relatively small groups of high-cost and low-cost companies at the extremes."⁷ The distribution of profit is assumed to be virtually the same as the distribution of costs, and on this assumption, the conclusion is drawn that the majority of concerns earn not far from the average profit.

⁶ Bureau of Business Research, Northwestern University School of Commerce, Series II, No. 9, pp. 17-19.

⁷ *Journal of the American Statistical Association*, Volume XVII, pp. 141-153.

This conclusion, however, does not indicate how high the average rate of profit might be. It does not indicate whether the average rate is about the same for all industries or varies greatly from one branch to another. The classical economic theory has taught that the average of each separate industry will tend to be a normal average. This theory of a normal average may be tested by statistical studies of profits in various branches of industry.

From data contained in income and excess profits tax returns for 1917, it has been possible to deduce the variations in average profits of 108 different trades and industries, comprising 26,477 individual firms.⁸ The following table shows the varying averages of profit on invested capital for a partial list of the 108 different industries.

Industry or Trade	Average Percentage of Net Profit on Invested Capital
All firms	24.75
Lowest industry, speculators	8.96
Highest industry, trades brokers	60.33
Steel plants and rolling mills	59.00
Bolts and nuts	52.53
Drug preparations	52.44
Fish canning	45.55
Silk throwing	44.89
Chemical industries	32.73
Textile industries	27.42
Paper and printing	23.68
Banking and brokerage	14.48
Real estate brokers	9.76
Telephone and telegraph	10.64
Trust companies	11.29

There is a very wide range of variation, from the lowest of 8.96 per cent to the highest of 60.33 per cent. Ten lines earned over 39 per cent, whereas ten other lines earned under 18 per cent. The remaining 88 lines ranged between 18 per cent and 39 per cent. Obviously there appears no such phenomenon as a normal average of profit common to all types of industries. Moreover, at least during the year 1917, it was not true that various branches of industry hold out equal expectations of profit to persons of equal abilities and equal capitals. What was true in this respect for 1917 is probably true for other years.⁹ In any given

⁸ Ralph C. Epstein, *System*, October, 1924, p. 420, and November, 1924, p. 565. Data derived from Letter of Secretary of the Treasury, *Corporations Earnings and Government Revenues*, in response to a Senate Resolution of June 6, 1918. Absolute size of the averages is affected by the fact that corporations listed are only those earning more than 15 per cent on their capital stock in 1917. *Relative* size of the averages, and *variations* of averages between different trades, are the striking facts presented from this data.

⁹ See p. 209 for profit variations in 1919, 1920, 1921, as reported under the income tax law for corporations earning net income. Data are derived from reports on *Statistics of Income*, published annually by the Commissioner of Internal Revenue. See also David Friday, *Profits, Wages and Prices*, pp. 40-45.

year, statistics of profit show no normal average for industries in general. Instead, they show striking inequalities and variations from industry to industry.

The variation in average rates of profits is accompanied by an equally wide variation in the rates earned by the central group of concerns in different industries. Central group variations are as great as average rate variations. The central group of one branch of industry may earn 5 per cent; the central group of another branch, 15 per cent; the central group of another branch, 50 per cent. Each group is central with respect to its own respective branch of industry, but gives no indication whatsoever of what the earnings may be in the central group of other branches. Each central group follows its independent course, regardless of any assumed normal average.

Not only are there wide profit variations between industries in any given year, but also there are wide variations in the same industry from year to year. The return on the total investment for 84 coal wholesalers from 1913 to 1922 varied from 6.6 per cent in 1921 to 49.0 per cent in 1920.

Year	Per Cent of Return on Total Investment, 84 Coal Wholesalers *
1913	19.9
1914	15.8
1915	15.9
1916	31.3
1917	41.8
1918	31.1
1919	18.0
1920	49.0
1921	6.6
1922	15.6

* Persons, Foster and Hettinger, *The Problem of Business Forecasting*, p. 217. Net profit as used in this table includes interest on investment.

The variations in the table on page 209 for the years 1921, 1922, 1923, are based upon the number of dollars earned on each \$100 of capital.¹⁰

It is apparent that there is no normal average of profits which a single industry or the general group of industries tends to earn. The variation in the mass is probably best shown by the net income and net deficit of corporations as reported in federal income tax returns.

The contrast between the high profits of 1917 and the low profits of 1921 is extreme. It brings out sharply the variations in earnings from year to year. It gives no basis for the assumption that profit

¹⁰ According to data computed by the Standard Statistics Company, 1924. Net earnings as here used are computed by methods similar to those outlined in the footnote on page 204. Minus signs indicate a net deficit for the year. Capital is here taken as surplus added to par value of all securities outstanding. On the same point, the following diagrams of profit variations in twelve different branches of industry are of value. The data were collected by the Federal Reserve Bank of New York. See *Monthly Review*, March 1, 1924, p. 8.

adheres closely to some normal level. The conclusion warranted by the facts is summarized as follows by Friday, "To the extent that economists and the general public have based their reasoning about normal profits upon an assumed minimum toward which profits tend or an average around which they group themselves closely, they have proceeded upon

Industry	No. of Companies	Dollars Earned on Each \$100 of Capital		
		1921 \$	1922 \$	1923 \$
Automobiles	26	—6.75	12.50	15.50
Fertilizer	5	—10.75	1.75	1.75
Leather	4	—10.50	3.50	—4.00
Tobacco	20	10.00	11.00	10.00
Retail trade	55	1.75	10.25	12.25
Paper	14	0.00	2.00	7.00
Railroads	73	4.25	4.25	5.00
All groups	934	3.50	5.75	6.75

an erroneous assumption. The most that can be said for normality of profits is that the amount of capital that earns the average rate of profits will remain a fairly constant percentage of all capital. Also, that the amount of capital that earns less than the average rate or more than the average remains about the same one year with another. But

Year	Net Income of Corporations Reporting a Net Income	Net Deficit of Corporations Reporting No Net Income
1916	\$8,765,187,985	\$656,904,411
1917	10,730,360,211	629,607,562
1918	8,361,511,249	689,772,361
1919	9,411,418,458	995,546,241
1920	7,902,654,813	2,029,423,744
1921	4,336,047,813	3,878,219,134
1922	6,963,811,143	2,193,776,356

the average itself is highly variable and the diversity of earnings for individual establishments is enormous. There is a pronounced variation of earnings from industry to industry within the same year and in the earnings of the same establishment from year to year."¹¹

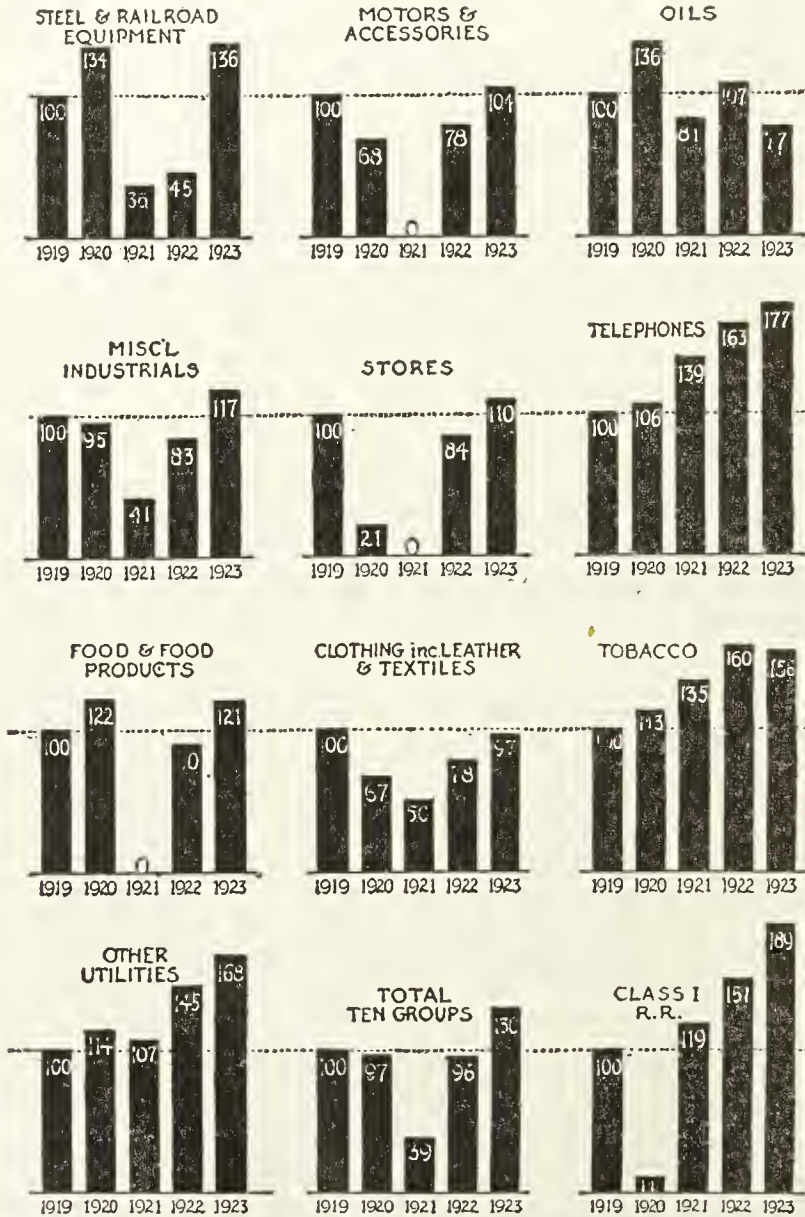
The Excess Profit Group.—In a group of 31,045 corporations in 1917, more than one-tenth of the net income after taxes went to corporations earning more than 50 per cent on invested capital, and about

¹¹ *Profits, Wages and Prices*, p. 45. Profit as used here refers to the income computed by methods outlined above, footnote to page 204.

2 per cent of the net income after taxes went to corporations earning more than 100 per cent on invested capital. Since the average return

ANNUAL NET PROFITS OF 203 MANUFACTURING, MERCHANDISING, AND PUBLIC SERVICE CONCERNS, AND OF THE CLASS I RAILROADS

(1919 Profits = 100 Per Cent)



for the entire group was 16.9 per cent, it is obvious that a small group at the top earned profit far in excess of the general run. A similar situation is found in the net income of 10,020 corporations for the years

1911, 1912, 1913. More than 5 per cent of the total income went to corporations earning more than 50 per cent. About 1 per cent of the total income went to corporations earning more than 100 per cent. We should not take any arbitrary per cent, however, such as 50 or 100, as the figure which characterizes each industry. The rate of profit which is exceptional is exceptional purely with respect to the average earnings within a particular branch of industry. If the average return is low, for instance 6 per cent, in a given industry, an individual firm earning 12 or 20 per cent would be exceptional. If the average return is high, for instance 30 per cent in a given industry, an individual firm earning 60 or 100 per cent would be exceptional. What is exceptional, therefore, varies very widely from industry to industry. Moreover, what is exceptional one year in an industry may be ordinary in a later year in the same industry. Super-profits are purely relative to a given industry in a given year. Profiteering is an accusation usually directed at this group of exceptionally prosperous concerns in any given industry. Sensational earnings of individual firms attract public attention. They are the target of prosecution and criticism.

The existence of such a group of exceptionally profitable concerns in each line of industry is not an abnormal or dangerous situation. It is the regular and expected situation. Certain firms each year survive the vicissitudes and hazards of the year with extraordinary success. Under the competitive system this is the ordinary outcome of the business struggle.

The Representative Firm and the Representative Profit Area.—

Alfred Marshall defined a "representative firm" as "one which has had a fairly long life, and fair success, which is managed with normal ability, and which has normal access to the economies, internal and external, which belong to that aggregate volume of production; account being taken of the class of goods produced, the conditions of marketing them and the economic environment generally."¹² F. W. Taussig explains the returns of the representative firm as "such business profits as business men of good ability secure in industry at large. Their superiors earn much more. Their inferiors earn less; perhaps go to the wall, perhaps rise slowly to better fortune."¹³ These definitions stress the notion of the permanency of the representative firm. Such a firm is assumed to be one which year in and year out holds to a position of approximately average profits. Others may come and others may go, but the representative firm is assumed to hold on steadily to its middle, fair, and average position.

This assumption is true of certain enterprises, but more often the representative firm lacks this assumed steadfastness and permanency. The statistics of profit making indicate that the truer conception is a "representative profit area." Some of the concerns in that area this year have formerly been in the no-profit area. They may fall back to

¹² *Principles of Economics*, p. 397, edition of 1898.

¹³ *Principles of Economics*, Vol. II, p. 184, edition of 1921.

that ill-favored group next year. or they may leap upward into the super-profit group. The representative group, in other words, is in a constant state of flux and turnover. There is little of permanent membership and adhesion in the group. Old members tend to disappear and to reappear. New members enter the group, persist for a time, drop out for a time, perhaps die out altogether, perhaps rise to the exceptional profit group. The permanent feature of the representative group is that such a central group maintains itself from year to year. The personnel of the members is continually changing, but the bunching of concerns about a representative center in each industry is a continuous phenomenon. The identity of the group is persistent, but the identity of the individual firms in the group is highly variable.

Secrist, in studies of retail clothing, assumed as the representative group those concerns which were within 20 per cent of the average. The representative profit area was taken as that area which included concerns earning not more than 20 per cent above or below the average. It was found that above three-quarters of the concerns fell within such a group. The 20 per cent area is, mathematically, a purely arbitrary assumption. It just happened that in the clothing concerns analyzed and the particular years involved, the bulk of business fell within such an area. This mathematical boundary of the area is not, however, at all binding for other industries or other years. It is simply suggestive of the meaning of the concept, "representative profit area." The forces of competition are constantly tending to drive some no-profit concerns out of existence and to raise others into the representative area. They are constantly tending to draw the super-profit concerns down into the representative area. Moreover, concerns which this year are at the average are likely next year to move widely above or below the average. The individual rises and falls, waxes and wanes, flourishes and decays, but the representative profit area as a whole goes on steadily from year to year.

Cost, Price, and Profit Groups.—Under competitive conditions, prices tend to be only high enough to cover the costs of production of the representative profit group. That is, prices tend to enable the bulk of concerns in any industry to earn a profit that ranges not far from the average for the group. This tendency may be slow in working itself out, and may be indefinitely delayed by a wide variety of obstacles, but as a tendency, it undoubtedly makes itself felt.

The fortunes of no-profit and super-profit concerns are differently affected by a price fitted in this way to the expenses of the representative profit group. The no-profit group suffer from the fact that prices are not high enough for their needs. In this lower layer of concerns, costs are excessive but the prices to cover those costs are no higher than for representative firms in general. The lower layer of ill-fated concerns are the victims of prices adjusted to the needs of representative firms. This lower fringe suffers from the exigencies of business. Costs at the fringe are ultra-high, prices are the same as for the representative group. High

costs, equal prices, no profits,—such is the history of the group below the representative area.

On the other hand, the super-profit group benefit from the fact that prices are higher than their needs demand. A firm which makes exceptionally high profits usually does so not because prices are any higher for that firm than for other firms, but because its costs are exceptionally low. Such a low-cost concern could afford to sell for a price lower than that set by representative groups, but it does not have to sell at a lower price. The price is one which will cover costs of representative concerns. It is one price and the same price, substantially, throughout the competitive market.¹⁴ The higher layer of specially fortunate concerns are the beneficiaries of prices adjusted to the needs of representative firms. Costs for this higher layer are ultra low, prices are the same as for the representative group. Low costs, equal prices, super-profits,—such is the history of the group above the representative area.

Finally, we are obliged to make our conception of the representative group a flexible one. Every change in demand and market conditions alters the volume of output which society requires from representative producers. Expansion or contraction is constantly going on in the scope of activity of representative producers in each line of industry. Representative prices are not fixed and absolute sums set for all time, or even for short periods of time. We deal with tendencies which may appear “in the long run,” and with general principles, forces, and laws, but underneath all of these lie the forces of change, progress, dynamic movement. The representative profit group expands and contracts, the prices required to cover representative expenses move upward and downward, but the tendency toward an adjustment between representative profits, prices, and costs, is always present and is always in process of working out its influence.

The Doctrine of Necessary Profit.—The doctrine that a certain minimum rate of profit is necessary raises a question as to the meaning of the word *necessary*. What is the necessary minimum of subsistence for business? What is the rate of minimum living returns?

As a general proposition, that rate is necessary which will attract adequate capital and business ability to each branch of industry and trade. *Necessity* rests upon *attraction*. Less than the necessary rate of profit will drive capital and business ability out of a given line of industry. More than the necessary rate of profit will draw capital and business ability into a given line of industry. The minimum rate of profit necessary is one which will attract sufficient capital and business

¹⁴ The relationship of cost, price and profit in the three groups of concerns may be explained diagrammatically as follows:

High cost concerns	$\left\{ \begin{array}{l} \dots\dots\dots \\ \text{Prices uniform for all} \\ \text{concerns at level of} \\ \text{representative costs} \\ \dots\dots\dots \end{array} \right\}$	No-profit concerns
Representative cost concerns		Representative profit concerns
Low cost concerns		High profit concerns

ability to each branch of industry to supply the goods and services demanded.

It further follows that this attraction of capital and ability toward the industry where it is worth the most and from the industry where it is worth the least tends to equalize the rate of profit in each industry. Theoretically, if this tendency worked out perfectly, each industry would hold out equal expectation of profit. If due allowance is made for differences of risk, it should be true as a tendency that equal ability has equal expectation of profit no matter what the industry in which it is engaged.

All of these notions of profit rest upon assumed *tendencies*, and upon what will be true *in the long run*. However, when we examine the life history of industries in light of the profits they have made, we can discover no way of measuring such long-run tendencies. How rapidly they will work out in different industries will depend upon a wide variety of conditions. How much the profit in an industry will be in any given year is wholly indefinite in the statement of such tendencies. The rise and fall of profits varies so greatly from industry to industry, from firm to firm, and from year to year, that tendencies are gravely obscured. The fact of the business world is immense variation in profits. This fact repeats itself endlessly. Faced with the fact, the theoretic tendencies appear so loose, so vague, so indeterminate, that they are at best a very hazy clue and guide to the fluctuations of profits.

Risk Taking and Insurance.—The relationship between profit and risk has been stressed in the foregoing discussion. The business man who is in pursuit of profit assumes the risks of price fluctuation, and of consequent financial loss. Business is a form of risk taking in which the business man directly assumes those risks which cannot be shifted or transferred to others. But there are alternatives to this direct assumption of risks, where certain kinds of risks are involved. The alternatives to assumption of risk are mainly threefold:

1. The elimination of risk.
2. The transfer of risk by insurance.
3. The transfer of risk by speculation.

The first method is useful only within certain limits. The risk of loss from price fluctuation can be reduced somewhat by scientific business forecasting, but after such forecasting has been exhausted, the business still undergoes severe and basic risks. The risk of loss of life cannot be eliminated altogether, but the risk of early death can be minimized by proper devices of health and hygiene to promote longevity. The risk of loss by fire can be cut down by proper construction of buildings and adequate fire fighting apparatus, but there remains a material risk of fire after all preventive measures are completed. The risk of accident can be reduced by safety first campaigns, but an undercurrent of accidents still continues. In spite of all that elimination and prevention can do, great and ruinous losses persist. This fact creates the need for insurance.

Insurance protects against loss from non-preventable causes. An insurance policy is a contract to indemnify a person for a defined loss. In essence, insurance is a contract of indemnification. By such a contract, it is possible for the individual to transfer his risk to an outside organization. Transfer of risk is the goal of the insured in taking out protection.

Just what is the *protection* afforded by insurance? Obviously, it is not a guarantee that the loss will not occur. The insurance company does not guarantee that death will not occur, that fire will not take place, that automobiles will not be stolen. The property burned in the United States annually amounts to from \$300,000,000 to \$500,000,000. Fire insurance does not stop this loss. What fire insurance does guarantee is that if fire occurs, it shall not fall with ruinous force upon any individual property owner. What life insurance guarantees is that if death occurs, the loss of earning power shall not be disastrous for the surviving family.

Why is individual loss ruinous? The reasons are twofold. First, the individual may not be prepared for the loss at the time it occurs. For instance, suppose a young man wishes to safeguard his family against loss. He has no estate. His asset is his ability to work. An early death would be disastrous to his family, because coming at that time, there is no possibility of the individual protecting his family against loss by anything which he can do as an individual. If he lives to age 60, he may have accumulated an estate sufficiently large that he no longer needs life insurance. But at any *time* before that he is absolutely dependent upon insurance. The time of loss is unforeseen. It is unexpected. It is uncertain. The time factor is the cause of disaster in loss. The second reason for ruin from loss is the *amount* of the loss. Where the individual stands his own loss, the amount of the loss is crushing. The violence of the concentrated blow from the burning of one's house or the death of the breadwinner of the family is due to the *amount* of the loss. The *time* factor and the *amount* factor, together explain the ruinous consequences of uninsured, individual losses.

Insurance substitutes for a loss both uncertain in amount and uncertain in time a known indemnification. The cost of this right to indemnification each year is only a small fraction of the indemnification guaranteed to the insured. In his business calculation, each man makes a definite payment of premium. He has a known and regular cost. And in return he has a known and definite indemnification. Certainty displaces uncertainty, and protection displaces the chance of disaster.

The risk to the insurance company is much less than the sum of all the individual risks insured. The insurance company collects premiums ample to meet all losses which are likely to occur. Over against this premium income, it has the outgo of claims paid on account of loss. The risk of the insurance company is that the losses in any given year will exceed the premiums and reserves of the company. But since the laws of average loss are known, this possibility is practically eliminated.

The premiums are calculated high enough to take care of any conceivable loss. A life insurance company is, we might almost say, absolutely certain that death claims cannot exceed the resources wherewith to meet the claims.

Numerous collateral benefits of insurance should be mentioned. *Insurance facilitates credit*, by enabling banks to be sure that the security for their loans cannot suddenly be wiped out. It is universal practice for banks to require fire insurance coverage on the commodity backing for loans, and it is becoming more and more common to safeguard character loans by requiring life insurance on the responsible parties. *Insurance promotes thrift and accumulates capital*. The billions of dollars of reserves of the insurance companies are a most important channel for the collection of savings from the mass of individuals, for investment in corporate enterprise. *Insurance promotes high standards of consumption*. The well-being of the masses is greatly enhanced by adequate life insurance. Untold misery is averted by life policies. Worry, bankruptcy, disaster, are prevented by property insurance. The happiness and welfare of the community is dependent upon insurance in all its forms. *Insurance also stimulates increased production*. Projects into which men would not dare venture on their own risk will attract them when risk can be covered by insurance. All forms and phases of modern business depend upon the protection afforded by insurance. Take away insurance and business would necessarily avoid the risk taking laden with imminent disaster.

Three main kinds of insurance are in common use. These may be listed as personal insurance, property insurance, and social insurance. *Personal insurance includes protection against loss from death, from accident, or from sickness*. The most important is protection from death, afforded by life insurance. *Property insurance includes protection from fire, from marine destruction, from theft, from collision, from hail, from tornado, from default of debtors, and numerous other causes*. The most important of these are fire and marine insurance. Title insurance and fidelity insurance are special forms of property insurance. Title insurance guarantees property owners against loss from defective title. Fidelity insurance and suretyship in general guarantees one party against loss from the acts of another. An employer is guaranteed against loss from the acts of his employees, a government is guaranteed against loss from dishonesty of public officials. The owner of a property in process of construction is guaranteed against loss by failure of contractors to complete the structure according to requirements. In all these instances, property rights are being protected against loss.

Social insurance is, strictly speaking, a subdivision of personal insurance. It involves forms of personal insurance which would not be provided without some form of social control. Social insurance applies chiefly to the masses who are unable or unwilling, if left to themselves, to provide ample protection against loss. *The contingencies embraced*

by social insurance are accident, sickness, old age, and unemployment. Since *laissez faire* fails utterly to secure adequate protection to the masses against these hazards, it is the function of the government to supply direction and control. Some form of compulsory regulation is essential. Accidents have been covered by workmen's compensation laws. These laws usually compel the taking out of insurance in some form, either through private companies, or state funds, or mutual associations, to reimburse the worker for loss due to accident. The cost may be defrayed in some cases by joint contributions of employer and employee, in others by direct payment of the employer as the responsible party. The fundamental principle involved is *that the risk of loss through personal injury in the course of production should be borne by the industry itself*.¹⁵

Compulsory sickness and old age insurance are extremely rare in the United States, but have been for some time an established policy in many European countries. Germany and England developed pioneer legislation in this field. Medical attendance, hospital care, partial wages during disability, funeral expenses, pensions for surviving women and children, were among the provisions of compulsory insurance against illness. Old age pension plans to prevent pauperism and misery were likewise developed by European countries. The United States has been slow to adopt similar measures, apparently under the feeling that they would be paternalistic or socialistic. In the United States, the mutual life insurance companies have done a great deal to spread insurance among the masses through the offering of small policies to workingmen's families, at premiums collectible in small weekly installments. Most of these policies are, however, too small to provide adequate assistance in time of need, and they are not a sufficient substitute for proper compulsory insurance against sickness and old age. Many trade unions have endeavored to fill the gap by benefit plans and mutual help policies.

Unemployment is a hazard which, in the main, arises through no fault of the worker. Seasonal and cyclical fluctuations of industry throw the worker out of a job. There is no sound reason why the employee should bear the full brunt of this loss. It should be distributed over the industry. Compulsory insurance against at least part of the loss from unemployment has been established in England and other European countries. Wisconsin has endeavored to secure compulsory insurance of this character, but has failed to secure its adoption by the legislature.¹⁶ Such unemployment insurance as exists in the United States is the result of the enlightened voluntary action of individual employers here and there who have installed their own forms of insurance,¹⁷ and of the collective bargaining of employer and employee, as

¹⁵ E. H. Downey, *Workmen's Compensation*, p. 21.

¹⁶ See discussion by John R. Commons, in *The Stabilization of Business*, edited by Lionel D. Edie.

¹⁷ *Ibid.*, chapter by Henry S. Dennison.

maintained, for instance, in some of the garment trades. In general, however, unemployment insurance is in a backward stage in the United States.

Insurance in its major forms is a comparatively recent institution. It has existed in limited degrees for a long period, but only in recent decades has it become an integral part of the whole economic system. The growing intricacy of the money economy has seemed to require a corresponding development of risk taking by means of insurance. *The pecuniary technique is dependent upon an insurance technique.* Likewise, group action is seen to be necessary for community well being in the modern complex society. *Laissez faire* and extreme individualism were perhaps adapted to an agricultural type of state, but they break down in the industrial type of state. The industrial state requires the combination of risks and hazards through insurance, to the end that the individual shall not be forced to suffer intolerable loss.

Risk Taking and Speculation.—Certain forms of speculation represent specialization in risk taking. Speculation in produce, such as cotton or wheat, tends to transfer the risk of marketing grain from farmers and manufacturers to specialists in risk taking. The speculators are large scale buyers of products, who make their purchases because they have estimated that demand some time in the future will enable them to sell at a profit. The speculative community feeds out the total supply gradually and by small degrees, for if the whole supply of a commodity, wheat for instance, were thrust upon the market instantaneously, consumers could not take up the supply. Gambling, whether on the market or elsewhere, is not to be defended.¹⁸ But speculation, which “tends to increase the supply of things where and when they are likely to be most wanted, and to check the supply of things where and when they are likely to be in less urgent demand,” is of the utmost service in keeping the adjustments of supply and demand gradual and smooth.¹⁹ Speculation which interprets market news as only shrewd and brilliant experts can interpret it, and buys and sells the country’s or the world’s supply of a commodity at times and prices which maintain a steady flow of goods toward the consumers who want and need them, is a force for equilibrium and poise in the market. Speculation connotes in the popular mind hazard and risk on a gigantic scale. It is true that speculation entails enormous risks, but the risks are not created by speculation. The risks exist already. The risks of adjusting local, national and world supply in any commodity to local, national, and world demand, exist from the very nature of the circumstances.²⁰ Speculation concentrates the risks of that adjustment, but it does not create them. Take away speculation, and the risks would still exist. But

¹⁸ In August, 1921, Congress passed a law regulating speculation and the exchanges. The law restricts gambling features of dealing in futures, restricts false market information, and aims to prevent market manipulation.

¹⁹ A. Marshall, *Industry and Trade*, p. 253.

²⁰ H. C. Emery, *Speculation in the United States*, p. 141. “Speculation consists in assuming the inevitable economic risks of changes in value.”

they would be scattered, broadcasted among hundreds of thousands and millions of people who have not the genius to shoulder the risks effectively. The speculator concentrates on his shoulders the natural risks of production and marketing, and is able to handle the risks efficiently because of his superlative genius for absorbing and interpreting market news, and of making forecasts, with scientific accuracy and on a gigantic scale, of the future market needs of the consumers of the world. The less difficult adjustments can be made by the interpretation of market news which the ordinary man in the market is able to make, and remarkable uniformity of action and judgment is arrived at in this commonplace way. But the greater and more intricate adjustments between supply and demand can be made smoothly only by men who are able to assimilate the vast amount of data on world markets and who are willing to shoulder the concentrated risks of speculation in the hope of making large profits.

Speculation in the great produce markets makes possible a special form of risk transference known as "hedging." By hedging, a flour manufacturer, for instance, can buy cash grain as raw material for his mill at the current price, and then can make a second, independent contract to sell grain *in the future*. If the price falls during the next few months, he will have lost on his cash grain, because he will have paid more than subsequent prices warranted. But he will make up this loss by his *futures* contract. When it is time to deliver grain under the futures contract, he can buy the grain at the low price then prevailing. But his sale price will be at the high point fixed at the time the futures contract was originally entered into. What he loses on cash grain, he will make up on futures grain. The making of future sales and purchases creates the possibility of hedging, and thereby creates the possibility of shifting risk from the manufacturer to the speculator. Numerous forms of hedging are practiced, but all have the general effect of shifting risk to the shoulders of those specialists who are most able and willing to bear risks.

Speculation in stocks and bonds on Wall Street does not always lead to a similar degree of risk transference. Too large a part of stock speculation is closely akin to gambling. Underneath this surface of gambling, however, there is a substantial element of risk specialization. The risk of loss through fluctuations in security values is concentrated in the hands of stock exchange speculators. Stock speculation tends to keep the market values of shares very close to the true values of those shares as reflected in the earning power of business.

The point to be emphasized here is that speculation is a form of risk taking. A great deal of speculation is a means of shifting risk to those who are most willing and able to bear it. Some kinds of so-called speculation are pure gambling. In general, speculation performs an indispensable and useful economic function, in concentrating risk in the hands of specialists in risk taking, who are most competent to bear the risks successfully.

Conclusion.—The looseness of so many of the concepts which have been treated in this chapter does not mean that such concepts are without value in economic thought. They are, on the contrary, invaluable, as far as they go. They are indispensable to business analysis, but they are not enough to afford a complete and realistic understanding of the profit economy. For the most part, the present chapter has been devoted to the classical economic theories of profit and risk. These are important and essential. But they are not enough. They leave a great part of the phenomena of profit unexplained. They require to be supplemented by a number of more specific considerations. They lead into problems of many kinds, but do not furnish a method of solution. Consequently, the following chapter endeavors to carry the analysis of profit further by a more concrete study of various questions. With the present chapter as a background, the more concrete analysis should lead to greater definiteness in the understanding of the whole subject of profit.

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CHAPTER XIII

PROFIT AND BUSINESS PROBLEMS

Profit, Money, and Prices.—Profit, viewed concretely, is a matter of money and prices. It is a matter of money, in that it is always a sum of dollars, pounds, francs, marks, or other financial units. Making profit is making money. The only way in which a business can get profits is to get dollars. Nothing else counts. Goods do not enter into profits unless they can be converted into money. Property does not enter into profits unless it can be sold for a sum of money. In modern business, profit is a purely pecuniary factor.

Money profits are obtainable because of a certain price relationship. This relationship is a spread between cost prices and selling prices. The margin between the prices which make up business receipts and the prices which make up business expenses is the profit margin. The only way known to a modern business man of gaining profit is to sell something for a price higher than the price paid for it. Modern business resolves itself into a series of price contracts for the purchase and sale of goods and services in terms of money. It is a connected mass of purchases and sales, and the margins between different prices within the system hold out the hope of pecuniary profit. The width of the price margin is counted in terms of money, and in no other terms. The decisive consideration at every link in the chain of price bargains is the spread between cost and selling price. Business is dominated by the quest for profit, and profit is always a sum of money, and this sum of money is always a price spread created by buying low and selling high. This is all there is to gain or loss as modern business reckons the matter. The last term of all transactions is the money profit derived from the price spread.

Producing Goods versus Producing Profits.—Production involves not merely the creating of goods and services but also the creating of money profits.

Physical production of commodities is simply one form and aspect of production. From the standpoint of the community at large, economic welfare is served in proportion as the output of goods is great or small. Emphasis here upon production as a source of welfare is not to be taken as a neglect of other equally important sources, such as wise consumption, or equitable distribution of wealth. At this stage of the analysis, production is the indispensable factor in welfare. In later stages of analysis, the other factors will receive due consideration.

Physical production is an industrial process, and includes the processes of the farm, the mine, the factory, the railroad, and the warehouse. It employs the physical sciences and the technique of engineering in order to make its processes effective. The measurement of its volume reads in terms of pounds, yards, bushels, carloads. Its capital equipment is tangible machinery, buildings, rolling stock. The criterion of its effectiveness is the making of material goods and commodities for the use of society.

From the viewpoint of the welfare of society, maximum physical production is a primary desideratum. But in modern economic life, the pecuniary aspect of production has intervened. It has come to dominate the whole process of physical production. The point of view is business profit. Production is the making of money profit. Incidentally, more or less goods may have to be made in order to make money profit, but always the making of the goods is an incidental thing. The real nature of production, as business views the matter, is the pursuit of profits. Business welfare is served in proportion as the piling up of profits is great or small. Business production is a pecuniary process, and includes the strategies of cutting costs, of calculating price movements, of salesmanship, and of financing. It employs statistics, accounting, and the technique of pricing, borrowing and lending, and buying and selling, in order to make its processes effective. The measurement of its volume runs in terms of dollars and cents. Its capital is stocks, bonds, and valuable property rights. The criterion of its effectiveness is dividends, surplus, and undivided profits. The balance sheet and the profit and loss statements are its cardinal documents. Pecuniary profit dominates physical production. Business lets physical production go forward just in so far as, by so doing, it expects increased monetary profits, but holds physical production back in so far as that may seem necessary to prevent a falling off of monetary profits.

“Making goods and making money are both objective processes, at some points quite distinct from or even opposed to each other; at most points running side by side, concerned with the same objects and supervised by the same men. We need clearer insight into the industrial process of making goods and the business process of making money, and the way in which both sets of activities are related to each other and to the individual’s inner life.”¹

Consequences of the Dominance of Pecuniary Profits.—There is no single and simple law governing the relation between production and profits. Production affects profit in a wide variety of ways. The only trait common to all these ways is that they affect profits by first affecting price changes of some sort. The various ways by which production, through affecting price changes, affects profit, cannot here be enumerated in detail, but certain of the more important ways can be stated in brief form.

¹ Wesley C. Mitchell, *American Economic Review Supplement*, 1916, Volume VI, p. 158.

(a) *Profit Making by Increased Production of Goods.* If a shoe manufacturer can make fifty cents on each pair of shoes produced, obviously the more shoes manufactured, the more total profit made. As long as a given price spread on each unit of product can be maintained, the greater the number of units produced, the greater the total pecuniary profit. The rate of profit on each unit of product remaining constant, the greater the number of units, the greater the total profit. What makes the profit is the price spread, not the existence of the goods as such. Goods as such have no claim to profit. Goods with a price spread automatically yield profit. What leads to profit is not the making of the goods, but the pricing of the goods so as to maintain a fixed price spread between unit costs and unit selling prices. The profit making is due to the price making relationships, and only incidentally to the commodity making that is carried on. With a given and fixed price spread, increased production of goods gives increased profit.

Increased production may affect profits by widening the price spread. Large scale business commonly tends to decrease the unit costs of production. Full time operation of plant tends to decrease unit costs of production.² When unit costs fall, the spread between costs and selling prices widens, and profit increases. When increased production takes place under these conditions, it creates increased profit. If these conditions disappear, further production of goods fails to yield further profit. The price conditions and relationships are everything. The output of the goods themselves is purely incidental to the price factors involved. Consequently, under conditions of either constant unit costs or decreasing unit costs, selling prices remaining the same, profit making requires the increased production of goods.

(b) *Profit Losing by the Increased Production of Goods.* Increased production leads to the losing of profits by two main results upon price making. First, production on a large scale eventually reaches a point of diminishing returns, that is, of increasing unit costs. Thereafter, each unit of product bears a cost price so high that the margin between cost and selling price tends to disappear. Increased production, which increases the pricing of costs without increasing the pricing of sales, leads toward loss. Second, production eventually reaches a point where an over-supply of goods causes a slump in selling prices. Over-production occurs only when the volume of goods has this depressing effect upon prices. Increased production which leads to decreased prices tends toward a loss of profit by the business man.

Increased production which results in rising costs or in falling sales prices threatens a reduction in profits. It is the price relationship which governs losses as well as gains. The making of goods, essential and indispensable though it may be, bears upon the making of money in and through its effect upon the making of prices.

² Even under increasing unit costs it often pays to expand production, because an increased quantity of sales more than offsets the diminishing profit per unit of product. Total profits may be increasing although unit profits are decreasing.

(c) *Profit Making Without Producing Any Goods.* Between the factory, the farm, the mine, on the one hand, and the consumer on the other hand lie a mass of traders, distributors, brokers, speculators, middlemen. Much of the work of this group is essential in getting goods into the hands of consumers. It is essential to modern distribution. But much of the work of this group can also be classed as a waste of distribution. Countless traders are constantly on the alert for an opportunity to buy something low and sell it high. They reap a profit. In pecuniary terms, they have made a gain. In business terms, they are successful. The profit, however, rests upon no added production of goods as a result of their effort. Goods are neither more nor less after they are through, but profits are more. Profit making without goods making, or without performing an indispensable function in goods distributing, is a commonplace of the modern business world. Almost every business follows out the strategy to some extent, and many business men depend solely upon such a strategy. Taking advantage of price fluctuations is the essence of profit making, regardless of whether commodity production changes or not. The tactics of pure business center upon the requirements of this great game of price differentials. The ups and downs of prices yield the ups and downs of profits. How much goods shall be produced is a wholly subordinate matter. Wherever and whenever more profit can be made without making more goods, the goods will not be made.

(d) *Profit Making by Decreasing the Production of Goods.* The essence of monopoly is the ability to raise prices by arbitrary lessening of supply. The increase of prices follows from a decrease of goods. The less the goods, the higher the prices, and the more the profits.

But the strategy of restricted production is no longer confined to monopolistic business. Competitive business in the modern era copies the same strategy. By following the statistics of output and of stocks on hand, the individual competitive producer calculates when the time has arrived for running his factory or mine on a part time basis. His calculation is based upon knowledge of the fact that unless he does curtail his individual production, he will find himself confronted with a saturated market and will be unable to sell his product at a profit. Throughout the industrial world we find productive equipment being run at only a fraction of its full capacity. No matter how free and perfect competition may be, the individual firm decreases its production from time to time in order to avoid a glutted market. It decreases production to avoid the calamity of overproduction. This calamity is purely a price calamity. Overproduction is overproduction at prices which would make possible a desired profit. Decreased production is a policy of individual competitors as a means of maintaining fair and profitable prices. It has no other justification and needs no other. This justification is imperative and compelling. When lessened production is the one true pathway to maintenance of prices and of profits, then lessened pro-

duction is the orthodox and standard business policy. Any other would be foolhardy. This alone would be discretion.

(e) *Profit Making by Destroying Goods Already Produced.* Occasionally, it is necessary in the name of profit to let apples rot on the ground, to dump milk into the gutters, to burn tobacco in the barns, to throw manufactures in the junk heap, in order to hold prices up to a profitable level. Such devices are the exception and not the rule, but they are resorted to just enough to make them a significant part of the technique of profit making.

(f) *Profit Making by Intangible Production.* Modern business contains a mass of values which are not material at all. Although intangible, they are nevertheless unsurpassed in importance in the technique of profit making. Here belong all those intangibles included in the sweeping term, "good will." Here belong the creation of and traffic in franchises, rights, patents, copyrights, advantages of location, advertising reputation. All such items possess pecuniary value. They can be bought low and sold high. They provide opportunity for a price spread between cost value and selling value. They offer a favorite means of making a profit. They exist everywhere and in abundance in the business world. They surround at all stages the physical process of production, but are separate from it. They are a traffic in immaterial property rights and values, and an integral part of the modern business profit régime.

(g) *Differences in Profit not Proportionate to Differences in Production.* A small difference in production may make an enormous difference in profits. There are times and places where a decline of production by 5 per cent would wipe out profit altogether. On the other hand a wide difference in production may make a slight difference in profit. There are times and places when a doubling of production would increase profits only slightly, if at all. Moreover, there are other times and places when production of the same amount of goods would make much, little, or no profit. One concern may make a profit by selling the same goods at a higher price than the average. Another may make a profit by producing the same goods at a lower cost than the average. Production bears no direct proportion to profit. Production always affects profits, but how it will affect profit varies with each particular price relationship. The bridge uniting production and profit is the price spread. Price relations are the central uniting factor between making goods and making money. Pecuniary production is profit making by virtue of favorable price relationships. Pecuniary production dominates physical production. It is well, therefore, as a next step to examine some of the methods by which this domination is made effective. We have analyzed how production affects profit. We may next analyze how profit affects production.

How Profit Affects Production.—Profit is the actuating force in business, production of goods is incidental. Making money is the real incentive to business effort, making goods is one means toward that end.

How does this actuating force, this primary incentive, exercise its control over production schedules? Fundamentally, we may say that the expectation of profit determines what kinds of goods shall be produced and how much of them shall be produced. When business men expect that they can make more profit by making more automobiles, they will make more automobiles. When they expect that they can make more profit by making more furniture and fewer automobiles they will plan production accordingly. The expectation of profit governs production schedules.

Emphasis is on *expectation* of profit. The expectation may fall short of realization. It may be utterly misleading. But as long as a given expectation holds, it governs production schedules. The expectation is based upon forecasts, estimates, calculations of the future. These may prove to be wrong. When they are proved to be wrong, new expectations of profit will arise, based upon new forecasts and estimates. The new and revised expectations of profit will govern new production schedules. The expectation, the anticipation, the forecast of today, govern the production program of today. The production programs will be corrected, modified, revised tomorrow, when anticipations of profit are corrected, modified, revised. Right or wrong, false or true, the prevailing anticipation of profit rules the kinds and amounts of goods that shall be produced.

The concrete effect of profit expectations upon production of goods may be seen by studying the main variations which occur in production. Previously in this discussion, fluctuations have been classified as secular, cyclical, seasonal, irregular. The effect of profit on each of these variations may be observed.

The secular trend of production in the aggregate has been steadily upward during the last half century. Output of goods has increased at an average rate of about 2 per cent per capita annually. The volume of physical wealth has increased under the guidance of the expectation of profit. The total of commodities available for human use has expanded under the governance of the profit anticipation. A boast is often made by the staunch defenders of capitalism that private profit is superior to any other conceivable system of production control because it meets the acid test of having turned out more commodities than any other business system in human history. Proud of our unprecedented physical wealth, awed by the grandeur of our material fortune, it is easy indeed to assume that private profit is a sacred, beneficent, and glorious guiding force. From any scientific point of view, we cannot subscribe to this enthusiastic adoration of the profit motive. The most that we can do is to acknowledge the fact that profit has increased per capita wealth. Whether profit expectation will continue to do so in the future, whether it is superior to some other method of controlling production schedules, whether it is the permanent, inevitable, and best device for the purpose, is a highly controversial issue. We may leave it for later discussion. Our only concern here is to note

the historical fact that the secular trend of production has shown a marked increase under the dominance of the expectation of profit.

Moreover, profit expectation has sifted and selected between the secular trends of different kinds of production. It has, for instance, made possible swift development of such lines of production as the railroad, the automobile, the radio. It has caused a secular decline of other lines of production which have passed their prime. The secular rise and fall of industries has obeyed the dictates of the expectation of profit. The ruling hand of profit has ruthlessly contracted this line of production and has vigorously expanded that line of production. The secular increase or decrease of production has been effectually accomplished by the profit force. Profit has affected the secular trend of production in individual industries by quick stimulation of those lines which yield the hope of large profit, slow growth of those lines which yield mild profit, and decline of those lines which yield inadequate profit.

The cyclical fluctuation of production is discussed in detail in the chapter dealing with business cycles. The series of ups and downs of production characteristic of the business cycle is controlled by the profit outlook. Production in general increases and prosperity appears when business sees a bright expectation of profit. Production in general decreases and prosperity collapses and decays when business sees a dismal outlook for profit. Production cycles are ruled by profit cycles. If production this year is 10 per cent less than last year, it is because the prospect of profit has darkened. If production this year is 10 per cent above last year, it is because the prospect of profit has brightened.

The profit cycle shows a much wider amplitude than the production cycle. Where the rate of earnings on capital in 1917 was around 25 per cent, in 1921 it was around 3 to 4 per cent. The rate in the former year was about eight times as great as in the latter year. On the other hand, the physical volume of production was only about one-tenth greater in the former than in the latter year. Making goods fluctuates within a much narrower radius than making money.

The relative size of fluctuations in making goods and making money varies greatly from industry to industry. No uniformity appears. No stereotyped relationship prevails. The pecuniary cycle dominates the physical cycle in unique degrees and ways in each industry. The money cycle dominates the commodities cycle to a different extent in the case of each commodity. But whatever the degree and whatever the extent, the outstanding fact demonstrated by modern statistics and by recurrent experience is that the prospect of profit controls the cyclical fluctuations of production.

Consequently, in answering our leading question, How does profit affect production? we come to the conclusion that profit fluctuations are responsible for the production fluctuations of the business cycle.

The third type of production fluctuation, namely, the seasonal, is likewise dominated by profit prospects. The majority of industries show

some form of seasonal change in production. Seasonal production to meet a seasonal market is the requirement of profit considerations. This enforced seasonal production is not, however, a fixed and inescapable condition for all industry. Many industries have found that they can, by modern methods of management, carry on year around production to meet a seasonal market. Such a change is made because, once business discovers it can be made, the new policy of continuous production promises better profits. Seasonal production remains seasonal unless and until business sees a chance for profit from making it continuous. The elimination of seasonal production takes place if, when, and where business sees a chance for profit from making the elimination. Profit expectation governs seasonal production.

The fourth type of production fluctuation, namely, the irregular, likewise follows the expectation of profit. War stimulates production because it stimulates the prospect of profit in industries which cater to the war demand. Unusual changes in the weather affect production only after it is apparent to business how they will affect profit. The abnormal, the unforeseen, the unfortunate, the extraordinary, influence production according as they influence the prospect of profit.

It is obvious, therefore, that the center of initiative and guidance in modern business is the prospect of profit. The hope for the making of money is the decisive factor in plans for the making of goods. Pecuniary factors rule the industrial factors. Profit is the nerve center of business. The orders for more production or less production emanate from the offices where the balance sheets and the profit and loss statements are read. The secular, cyclical, seasonal, and irregular fluctuations of commodity production are the servant of profit making. The inner nature of economic life in modern society can be understood only by grasping the significance of this pecuniary sovereignty in business.

Profit and Property Valuation.—Profit not only governs the production of goods, but also governs the valuation of all forms of property. Profit holds a most important position in value theory. The direct determinant of the value of industrial, railroad, commercial, or real estate property, is the expected ability of the property to earn profit. The value of a factory hinges upon the amount of money that can be made by its operation. The acid test of valuation is its pecuniary effectiveness, and only incidentally and secondarily its mechanical efficiency. The value of a farm depends upon the size of the net returns which the land is capable of earning. Physical qualities of the property are wholly subordinate to the profit-earning qualities of the property. Tangible goods and material wealth as such give no clue to their valuation. Only the prospect of making money from the control of goods and wealth gives the clue to valuation. The valuation of property is, therefore, a monetary matter primarily, and only incidentally a physical or mechanical matter. Money profits govern valuations.

The mathematical device of ascertaining valuation is capitalizing the prospective net earnings of the property. The calculation involves two

variables, the size of the earnings and the rate of capitalization. Thus, earnings of \$100,000 capitalized at 10 per cent would give a valuation of \$1,000,000. If the earnings be doubled, and are \$200,000, the rate remaining the same, the valuation would be doubled, and would be \$2,000,000. An increase of \$100,000 in earnings would bring an increase of \$1,000,000 in the valuation of the property. On the other hand, if the rate of capitalization be cut in half, and be made 5 per cent, the size of earnings remaining the same, the valuation would be doubled, and would be \$2,000,000. In this case, without any change in earnings, but merely by a change in the rate of capitalization, the value of the property would be doubled. A drop in the rate of 5 per cent brings a change in value of \$1,000,000. The valuation is the result of the two variables, earnings and rates. A rise in valuation may come either from a rise in earnings, or a fall in the rate of interest, or a combination of both. Earnings remaining the same, the value of property tends to be greatest when the rate of interest used as the basis of capitalization is lowest. Rates remaining the same, the value of property tends to be greatest when earnings are highest.

These relationships are perhaps best seen in the values placed upon corporate securities in the stock markets. These securities are evidences of corporate properties, tangible or intangible, and the prices paid for the securities are simply values of the rights to share in future income of the corporations. The thing bought fundamentally is rights to share in expected corporate profits. A share of stock which entitles the holder to share in such profits as are made derives its value primarily from capitalizing the prospective income. Prices of such stocks rise highest when the anticipation of earnings is highest, and when simultaneously the rate of interest is lowest. Prices of such stocks fall most sharply when anticipation of earnings is darkest and when simultaneously the rate of interest is highest. The foundation of a bull market on the stock exchanges is a combination of high prospect of profits and low rates of interest. Conversely, the foundation of a bear market is a combination of low prospect of profits and high rates of interest. Prices and values reflect earnings and rates.³

In applying the principle of capitalization of prospective profits, many related factors have to be taken into account. It is not a simple formula which can be used indiscriminately, automatically, or mechanically. A mathematician can complete the purely arithmetical computation quickly, but his computation would be utterly misleading if that were all of the process. "Prospect of profit" is an unknown quantity. It can be estimated only by shrewd judges of the market. It can be guessed at only by competent forecasters of business conditions. Here

³ In strict economic word usage, earnings should be separated into reward for risk taking, or profits; reward for saving, or interest; and reward for management, or wages of management. This separation is made in the chapter dealing with Capital and Interest. For present purposes, however, it is less confusing to use as a thinking tool the general concept of business profit as it is understood by the accountants, the speculators, the brokers, and the property market generally.

is room for endless difference of opinion, for endless conflict in business judgment. Likewise, the rates of interest and capitalization are the rates of the future. They too can be estimated and guessed. They offer room for opinion and judgment. But the calculation looks to the future. Whether we take earnings or rates, we are obliged to look to the future. Present earnings and rates are involved, but more vitally involved are the earnings and rates of the future.

Future calculations are affected by a vast array of factors. Irregularity of the prospective earnings, dividend histories, safety of principal, marketability, depreciation, personnel of management, liens and encumbrances, inventions and patents, franchises and contracts,—all of these are involved in estimating future rates and earnings. The essential fact here emphasized is that all such related factors are significant in the value process only in so far as they affect earning power. All factors tie up to this pivotal factor of capitalizing profits before they have a bearing upon valuation. Consequently, the appraisal of property values becomes a highly technical undertaking, involving a right understanding of how each and all of these sundry factors help or hinder the profit making power of a given piece of property. Value making involves all factors which relate to profit making. What the physical commodities are worth depends upon how much money they will make for their owners. Things take their values from the dollars that can be made by possessing them.

Under these circumstances, wide changes occur in the values of things without any corresponding changes in the things themselves.⁴ Farm land may rise and fall billions of dollars in value without any change in acreage; corporate securities on the stock exchange may rise and fall billions of dollars without any change in the physical plant of the corporations;⁵ the national wealth may rise and fall scores of billions of dollars without any change in material resources. The

⁴There is nothing in the present explanation which cannot be fitted into the traditional analysis of derived utility and derived value. The author has no criticism of the soundness of the traditional utility analysis, but finds that it leaves the matter in a state of vagueness and indefiniteness. In order to penetrate the phenomena of modern property markets, it seems necessary to go beyond the utility methods of analyzing value. It seems necessary to go directly to the heart of the pecuniary or business process of valuation. When this approach is taken, the emphasis falls upon the prospective profits and the rate of capitalization.

⁵The value fluctuations here in question are such as might occur under conditions where the price level would be practically stationary. That is, they are not due to inflation or deflation of the price level, but to increase or decrease of the profit scale. In actual practice, of course, changes in the measuring stick of value, due to inflation and deflation, complicate the process of capitalizing prospective profits. They complicate the process, but do not alter or check it. For instance, in the weeks immediately following the presidential election of 1924, the bright prospect of rising corporate profits and continued low interest rates led to an estimated increase in the market value of all securities listed on the stock exchange of more than \$3,000,000,000. The physical plant of the corporations represented was practically unchanged, but the values of their securities were enormously changed. A mild increase in the price level simultaneously simply fortified the more strongly the belief in future rise of profits.

physical plant is the same. The tangible goods are the same. The material equipment is the same. The natural resources are the same. The capacity to produce goods is the same. But the capacity to produce profits is not the same and therefore the value of the entire physical wealth is not the same. Physical goods versus monetary values, material things versus dollar values, tangible wealth versus pecuniary wealth,—such are the contrasting aspects of the modern property markets. To understand the business aspect of modern economic life, one must focus attention upon the value making forces. Value making in the business sense is capitalization of prospective profit making.

Profit and Wages.—The struggle which persists between capital and labor centers in large measure upon a desire to obtain as large a share as possible of the national income. Labor desires to make the share of wages as high as possible. The division of the proceeds of industry is, therefore, a major point of contention. How much shall go to profit and how much shall go to wages are questions of fundamental concern. In order to analyze the problem, it is necessary to ascertain some of the pertinent facts bearing upon it.

One conspicuous fact appears to be that the division of the national income results in considerable variation in the relative size of profit and wages in different years. In 1909, wages and salaries constituted 68.7 per cent of our national income. In 1916 their share had fallen to 66.7 per cent. But in 1918, it had risen to 77.3 per cent. The share of wages was nearly one-sixth greater in 1918 than in 1916. The following data show the variation in the wage share as compared with the share of management and property from 1909 to 1918.⁶

DIVISION OF COMBINED NET VALUE PRODUCT OF MINES, FACTORIES, AND LAND TRANSPORTATION BETWEEN EARNINGS OF EMPLOYEES AND RETURNS FOR MANAGEMENT AND THE USE OF PROPERTY, 1909-1918

Year	Per Cent	
	Wages and Salaries	Management and Property
1909	68.7	31.3
1910	68.8	31.2
1911	72.3	27.7
1912	71.6	28.4
1913	72.0	28.0
1914	73.8	26.2
1915	71.5	28.5
1916	66.7	33.3
1917	68.9	31.1
1918	77.3	22.7

⁶ National Bureau of Economic Research, *The Income of the United States*, Vol. I, p. 97.

The foregoing figures come down only to the year 1919. Similar data computed by David Friday indicate that the share of labor was even larger in 1919 than in 1918.⁷ Data from the reports of the Treasury Department on *Statistics of Income* indicate similar variations from 1918 to 1922. Personal income derived from dividends was 14 per cent of total personal income in 1918, but only 10.9 per cent in 1919, 10.2 per cent in 1920, 10.6 per cent in 1921, and 10.7 per cent in 1922. While dividends were becoming less important as a source of personal income, wages and salaries were becoming more important. Whereas wages and salaries constituted only 47 per cent of total income in 1918, they mounted to 47.9 per cent in 1919, 57.2 per cent in 1920 and 59.2 per cent in 1921.

From such data, it is obvious that profit and wages do not receive fixed proportions of the national income from year to year. In the post-war period, labor received a growing share of the total income. Indeed, the share of labor in this period became unusually large, and constituted a material improvement in the position of labor. If labor could hold the high proportion of income which it won during these years, such a favorable position would seem to be a substantial achievement in the direction of labor welfare.

The labor group bettered themselves during the post-war period, but for a period of two decades prior to that time, labor had suffered an opposite fate. Year by year the total income of the nation increased, but real wages were either stationary or actually declining. Labor's share of the steadily increasing national income declined. The lesson of the experience would seem to be that labor cannot count automatically on receiving its proportionate share from an increase of national production. Labor's concern is not merely how much shall be produced, but how large a share of that product shall revert to labor. Profit's concern is not merely how much shall be produced but how large a share of that product shall revert to profit. The records of the past show clearly that neither capital nor labor has received a fixed and absolute share. On the contrary, they receive varying shares from year to year, depending upon the conditions peculiar to the time.

⁷ Distribution of Value added by Mining, Manufacturing, Railroad and Public Utility Corporations.

Year	Total Value Added	Wages	Taxes	Interest	Dividends	Surplus less Deficit
1913	100%	63.9%	3.8%	8.9%	18.5%	4.9%
1916	100	56.6	4.0	6.0	14.3	19.1
1917	100	54.3	11.5	3.8	15.0	13.4
1918	100	61.0	13.7	6.4	11.7	8.2
1919	100	70.2	9.0	5.0	11.1	4.7

From David Friday, *Profits, Wages and Prices*, p. 124.

The drastic proposal is often made that profit be considered an unearned income and therefore be divided among the laborers as increased wages. The chapters dealing with wages deal with this matter statistically. At this point, we may simply point out that statistics of income show that in the aggregate very little increase in income could accrue to wage earners if profit were wiped out. The hope of labor progress is not from dividing profit up among the masses in petty amounts. The hope lies in an increase of the aggregate of production, and an assurance that labor shall receive its proportionate share of the increase. A greater total product, and an adequate share in that total, is the sound basis for labor progress. It is certainly a more constructive method than the device of increasing wages by decreasing profits. The latter is narrowly limited in its possibilities; the former is positive and permanent.

Profit and the Consumer.—There has been a popular notion that profit is a tax on the consumer. To test this notion, it is necessary to discriminate between two classes or sources of profit. One class of profits undoubtedly constitutes a gouge out of the consumer. This class of profits includes gains from monopoly control, from unfair competition, from restraint of trade, from exorbitant price boosting in order to take advantage of sudden spurts of demand or of temporary conditions of imperfect competition. In all such cases, profits do add to the expense of goods. They are a kind of tribute exacted from the consumer, by virtue of the strategic advantage held by certain business concerns. This power to take toll of the consumer tends to succumb to the gradual force of competition. But the process of competition is so prolonged and delayed that a very considerable part of business all of the time finds itself able to make a profit by adding to the burden of the consumer.

A second class of profits, on the other hand, involves no added burden to the consumer. Profits derived by producing at lower cost than other concerns are the gains of efficiency. The goods are sold at the price charged by other concerns. No price boosting takes place. Exceptional efficiency and exceptional lowness of cost are the cause of such profit, and these in no way constitute a gouging of the consumer. Likewise, if profit is made by quantity output, so that a small margin of profit is made on each unit of product but a large total profit is made from the great number of units turned out, there is no burden placed upon the consumer. The profits are due to the economies and advantages of quantity production. Prices are not boosted, they may even be lowered. Consumers are not taxed. High profits of this type are not the cause of high prices. The profits of efficiency and of quantity output are not an added burden upon the consumer.

Consequently, whether or not the making of money injures the consumer depends definitely upon how the money is made. Some pecuniary profit is due to taking advantage of the consumer by boosting prices; some pecuniary profit is due to cheapening costs without affecting prices

to the consumer. To test the effect on the consumer, it is necessary to make the distinction between the two classes of profits.

Profit and Inflation.—In later chapters dealing with business cycles and with price movements, the fact is established that profits are unusually great during a period when prices in general are rising. A period when the average level of prices is rising is called a period of inflation. Inflation gives rise to bountiful profits for the bulk of business men. Deflation, or falling prices, on the other hand, gives rise to heavy losses and to severe diminution of profits.

The reason is elaborated later,⁸ but may be briefly stated here. When prices are rising, business buys at today's scale of prices. But business sells at tomorrow's scale of higher prices. When the price level is rising, the scale of selling prices tends to outdistance the scale of buying prices for the individual concern. Inflation lays a perfect foundation for buying low and selling high. Deflation works to an opposite result. Business then buys at today's high prices, but sells at tomorrow's lower prices. Deflation reverses the price spread, and lays an inevitable foundation for buying high and selling low.

The profits of inflation are unearned profits. They are unearned in the sense that they arise through no virtue, merit, or action of the business man. They arise, due solely to an external cause, that is, to a rising price level. The business man did not generate inflation. He has no power to bring it on or to halt its course. Inflation is the product of excessive issues of bank credit and of government notes. The banks and the governments determine whether inflation shall exist or not. They determine the matter by the expansion or contraction of money and credit. If financial policy of banks and governments leads to inflation, then business reaps exceptional profits. Business has done nothing exceptional to earn the exceptional profit. The only exceptional force, inflation, is one which business did not create and which business cannot take away. It has been said that when inflation occurs, business cannot help making profit. Without any superior efficiency, without any unusual effort, business then wins extraordinary gains. Likewise it is true that when deflation comes, business cannot help suffering losses. Without any slackening of efficiency, without any lessening of effort, business then incurs extraordinary losses. The profits of inflation are unearned profits; the losses of deflation are unearned or undeserved losses. Profit and loss of this kind must be set down wholly to chance.

The profits of inflation are due to no special greed or avarice on the part of business. This fact, however, is not at all conceded by public opinion. The public fastens the stigma of profiteering upon the gains of inflation. During a period of inflationary profits, agitation runs high for the prosecution of the business concerns which are winning high profits. The public attributes such profits to selfishness, to exploitation, to monopoly, to violation of the law, to conspiracy, to malice aforethought. But it is not high profits which make inflation. Rather, it is

⁸ See below, p. 521.

inflation which makes high profits. The inflation is due to over-expansion of finance, not to greed for profit. The inflation is due to a cause which business did not make and which business cannot control. The cause of inflation lies outside the jurisdiction of business. The results of inflation fall into the lap of business. The golden harvest of profit goes to business. Rising prices showered rising profits down upon business.

Just as the public misunderstands the cause of profiteering during inflation, so it misunderstands the proper remedy. Instead of passing laws to forbid further price increases, or of bringing profiteers into courts for prosecution, or of preaching to business the duties of self-restraint in pursuit of gain, the measure which most of all is needed to deal with inflationary profits is to stabilize price levels. To stop profiteering, stop inflation. To stop inflation, stop the over-issue of money and credit. The technical consideration involved in such a price policy is taken up later in chapters dealing with money and banking. At this point, it is sufficient to emphasize the fundamental principle that profits due to inflation can be stopped only by first stopping inflation itself. Price stabilization by a suitable financial policy on the part of banks and governments automatically puts an end to profiteering. This is the logical economic method of dealing with the situation, and makes all other popular proposals irrelevant and futile. When we eliminate inflation, we eliminate at the same stroke the profiteering which has been the creature of inflation.

Profit and Government.—Government policy relates to profit in a variety of important ways.

The Government may encourage and stimulate profit by legislation and by administrative policy. A cardinal example of such help is the protective tariff. Protective duties are aimed toward an improvement in the profit-making power of domestic business. The method involved is an excellent illustration of the contrast between pecuniary profit and physical production. The tariff restricts the amount of tangible goods available for the use of the nation as a whole. The rates keep goods out of the country, and limit the goods which consumers can obtain. But this restriction of physical goods is a direct pathway to an increase of money profits. Business profit under the tariff accrues from arbitrarily limiting the country's supply of goods. Likewise, administrative branches do all in their power to encourage exports of goods. Business profits depend upon the amount of goods sold. The gain of society, on the other hand, would require not that we get rid of as many goods as possible by exports, but that we get as many goods as possible by imports. The whole network of tariffs is formed because of the distinction which is at the heart of modern business, between productive gain in the physical sense and pecuniary gain in the money sense. The tariff is, in essence, a governmental device for increasing money profit by decreasing physical product. Other measures of Government stimulation of profit are common. One of the most important is scientific research,

fact finding, statistical reports, and the providing of fundamental information of value to business.

Instead of stimulating profit, the Government may limit profit by regulation of rates and prices. Price fixing was resorted to widely during the World War, and had a restraining effect upon the accumulation of business profits. In peace times, however, price fixing encounters the opposition of both business and public opinion. This opposition is, of course, simply the state of mind which happens to prevail for the time being. It may be merely a temporary individualism; it may be a permanent individualism. One branch of enterprise does, however, come within the scope of Government control. This branch is public utilities. Federal and State Governments have established commissions empowered to set maximum rates for railroads, for gas, light and heat companies, for street cars, for telephone and telegraph systems. Rate regulation is usually supposed to aim at providing a fair rate of profit on a fair valuation. What is fair is capable of widely different interpretations. Perhaps the idea which runs most commonly through definitions of fair rates is that scale of rates which will yield for the bulk of the industry the amount of profit necessary to attract capital to that industry. The consensus of opinion among public utility commissions has been that the profit necessary to attract capital is between 5 and 8 per cent on the investment. Rate regulation of public utilities has become an accepted and established part of the technique of doing business.

A third method of Government control of profit is to set the terms and conditions under which business may be carried on. The common law constitutes a mass of decisions affecting contracts and property rights. These are a set of rules for the conduct of business, and are the terms under which business may strive for profit. Legislation against monopoly, restraint of trade, unfair competition, collusion in price making, and the like provide further rules for business operation. The opinions of the judiciary constitute a vast array of precedents for the guidance of profit making. Prosecution of law violation aims to prevent illegal accumulation of earnings. The law and the courts lay down the rules of the game. Business is allowed to make profit only by obeying these specified rules.

Finally, the Government may by taxation seize the profits that have been made. Progressive income taxation, or excess profit taxation, applied to the earnings of corporations and individual businesses, are the most common methods of taking profit away from the concerns that have made it. Even where price fixing or rate regulation is in force, many corporations are able, because of low costs, to make exceptional profits. These profits can in part be diverted to Government revenue by taxation. Concerns in any line of business which earn above the average profit, and especially those concerns in the so-called super-profit group, are denied undue gains by the inroads of taxation. Such taxation, within proper limits, averts excessive inequality in profit mak-

ing. Overdone, it stifles business. Moderately done, it diverts extraordinary personal gains to the use of the entire community.

The Government may stimulate profit, limit and regulate it, set the terms and conditions of its accumulation, or tax it out of private hands after it has been made. In any case, Government policy has a fundamental bearing upon profit making. The economic functions of Government are intimately interwoven with the business process of gain and loss.

Profit, Surplus, and Dividends.—Profits after taxes are divided between dividends distributed to stockholders and surplus retained in the business. The following table shows the proportions in which this division has been made in different years. Also, it shows the ratio which corporate surplus bears to total national income in different years.

Year	Per Cent Dividends and Surplus Are of Profits, Average All Corporations *		Per Cent Corporate Sur- plus is of Total Na- tional Income †
	Dividends	Surplus	
1910	58.8	41.2	3.86
1911	66.6	33.4	2.88
1912	71.9	28.1	2.78
1913	69.5	30.5	3.00
1914	77.9	22.1	1.54
1915	56.2	43.8	4.46
1916	42.7	57.3	8.57
1917	50.2	49.8	6.31
1918	56.9	43.1	2.75
1919	63.1	36.9	1.97
1920	65.0	35.0	

* National Bureau of Economic Research, *Income in the United States*, Vol. II, p. 327; also David Friday, *Profits, Wages, and Prices*, pp. 62, 117, 124.

† National Bureau of Economic Research, *Income in the United States*, Vol. I, p. 35.

The bulk of the division over this period has centered within a range where from 40 to 60 per cent of profits is disbursed as dividends.⁹ The proportion which goes to surplus depends primarily upon whether business is in a state of prosperity or depression. When prosperity is widespread and profits are large, corporations set aside large reserves. When depression ensues and profits are low, corporations are able to set aside very slight reserves and often are obliged to dip into past surplus to pay current dividends. The division of profits into dividends and surplus largely reflects the ups and downs of the business cycle.¹⁰

⁹ For statistical calculations, see O. W. Knauth, *Journal of the American Statistical Association*, Volume 18, p. 164 ff.; and W. I. King, *idem.*, p. 464 ff.

¹⁰ The table at the bottom of page 238 shows variations between industries in per cent of profits disbursed as dividends in 1922.

This variation of corporate surplus is further brought out by the varying per cent which corporate surplus is of national income. Corporations normally lay aside from 2 to 9 per cent of the national income before distributing the remainder of their net earnings to the owners of the business. The share thus laid aside tends to be greatest when the share of the national income going to profits is greatest.¹¹ Corporate surplus is greatest when profits are greatest and least when profits are least.

The greater part of this surplus is reinvested in the business. It is saving, devoted to the provision of capital. Profit put back into the business directly constitutes a most important source of capital accumulation. For the decade ending 1920, corporations saved directly in the neighborhood of 40 per cent of their net earnings. If we add to this saving by corporations the similar saving out of profit by a wide variety of noncorporate businesses, the aggregate of business savings out of profit amounted during the period 1909-1917 to 50 per cent of the total savings of the nation. We may conclude, therefore, that one of the most important uses to which profit is put in modern business is reserves for capital. Such capital expenditures increase the facilities of production, improve the productivity of labor, make possible greater per capita output of wealth, and augment the material income of the community as a whole.

PER CENT OF PROFITS DISBURSED AS DIVIDENDS IN 1922

Industry	Per Cent Dividends Are of Profit
Agriculture and related industries	43.1
Mining and Quarrying	67.4
All Manufactures	44.9
Food Products, Beverages and Tobacco	45.9
Textile and Textile Products	42.9
Leather and Leather Products	27.6
Rubber and Rubber Goods	25.4
Lumber and Wood Products	45.2
Paper, Pulp and Products	49.2
Printing and Publishing	44.8
Chemicals and Allied Substances	52.3
Stone, Clay and Glass Products	34.2
Metal Manufactures and others	41.1
Construction	43.3
Transportation and other Public Utilities	72.4
Trade	35.1
Service	43.7
Finance	54.1
All Others	54.7
Total	49.6

Compiled from Senate Document No. 85, on *Distributed and Undistributed Earnings of Corporations*, in the form of a letter from the Secretary of the Treasury, in response to a Senate Resolution of Jan. 7, 1924.

¹¹ See p. 230 for table giving data as a basis of comparison.

This practice of business has an important bearing upon the proposal often made to increase wages by decreasing profits. If wages obtained in that way were spent by labor for immediate consumption, there would be a famine of productive capital, a dearth of savings. The inroad upon corporate surplus would have serious effects upon capital accumulation. It is, of course, conceivable that labor would save its increased wages.¹² If labor saved an amount equal to what corporate savings would have been, obviously the total supply of capital would not be undermined. It would mean that the same total capital was being provided but by the channel of savings out of larger wages instead of surplus set aside out of profit. If labor seized as much as one-half of present profit, and spent the amount, the result would be disastrous to the accumulation of productive capital. If labor seized one-half of present profit, and saved the amount, labor would not thereby raise its own standard of living perceptibly. What it saved it could not consume.

However, in the course of time, labor's position would be considerably advanced. Labor would own a mass of securities and properties. This reserve of personal wealth would be a great asset in the protection of family income, and in the accumulation of moderate individual fortunes. Moreover, the possession of all such capital savings would give labor an income from owning which now accrues to business concerns. If labor did the saving which is now done by business, labor would reap the interest and dividend returns on those savings which now go to business. These considerations are important in proposals to reform the economic world by a more democratic distribution of wealth.

A further feature of the situation is the comparative stability of surplus and dividends.¹³ Accounting practice tends toward a policy of maintaining dividends as evenly as possible in good and bad years alike. This attempt to stabilize dividends requires that in times of high profits, large reserves be set aside against the probability of low profits in later years. It also means that in times of low profits, the only means of keeping up dividends is by dipping into accumulated reserves. In many cases, dividends in poor years are paid entirely out of past surplus. Surplus acts as a shock absorber between good and bad years. It is an instrument of conservative financial policy, and of stabilization of returns to investors in the business.

The uses to which profits are put are not fixed and stereotyped. The proportion used as surplus and dividends respectively is governed from year to year by the needs of the business situation. These needs involve capital accumulation, emergency reserves, and stability of dividends.

The Profit Motive and Social Well-being.—Extreme opposite views of the profit motive are held by the socialist and the capitalist. The

¹² See below, pp. 289, 444, for data bearing upon the actual uses of labor incomes in modern wage groups.

¹³ The diagram at the bottom of page 240 showing net quarterly profits of the United States Steel Corporation available for dividends, compared with dividends

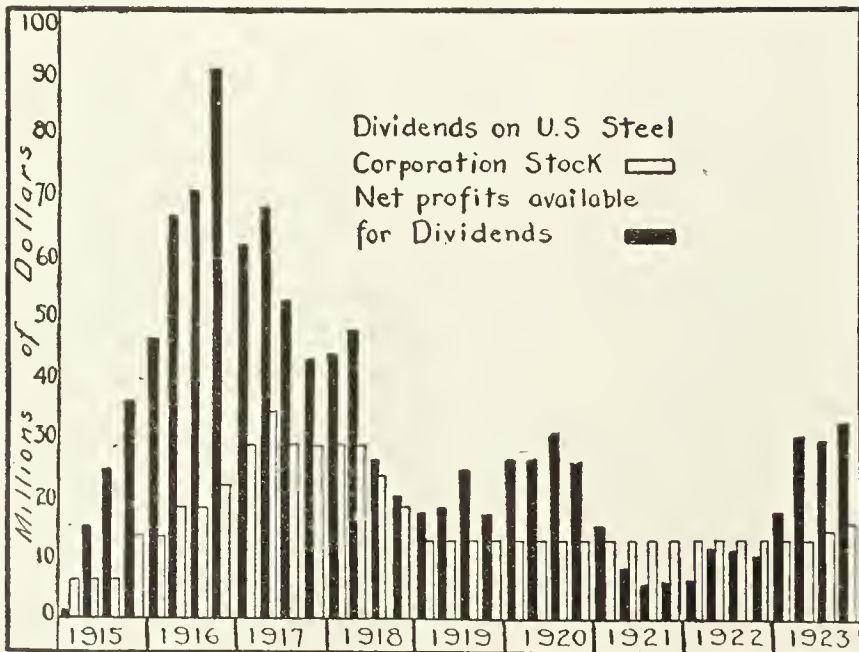
profit motive receives from the socialist scathing denunciation, from the capitalist lyric adulation. A comparison of these opposite views furnishes a basis for critical analysis.

The modern socialist indictment of profit is summarized as follows by Sidney and Beatrice Webb in a discussion of *The Decay of Capitalist Civilization*.¹⁴

In the first place, the bulk of the people live in penury and a large number of them are perpetually threatened by starvation. In the second place, this penury and its accompanying insecurity are rendered more hideous and humiliating by the relative comfort and luxury of the proprietary class, and by the shameless idleness of some of its members. The worst circumstance, however, is the glaring inequality in personal freedom between the propertyless man and the member of the class that lives by owning. Hour by hour, day by day, year in and year out, the two-thirds of the nation who depend for their daily or weekly housekeeping on gaining access to the instruments of production find themselves working under the orders of the relatively restricted class of those who own these instruments. The sanction for the orders is not legal punishment, but, ultimately, a starvation which is supposed to be optional.

Who can measure the diminution in health, in happiness, in morality, and in intelligence caused through the profit maker by the defilement of air, water, and land, and the destruction of all amenity and beauty in the surroundings of countless millions of his fellow citizens? In pursuit of the limitless natural

actually disbursed, indicates the policy of stable dividends, in spite of fluctuating profits and surplus.



The diagram is as compiled by the Pollak Foundation from the Annual Reports of the United States Steel Corporation.

¹⁴ Pp. xv, 118, 131, 186, 195. See also R. H. Tawney, *The Acquisitive Society*, and Bertrand Russell, *The Prospects of Industrial Civilization*.

wealth of new and slightly peopled lands the profit maker proceeds with his destructive process from continent to continent. Fur bearing and food animals are killed in season and out of season, to the point of extermination of the species; primeval forests are levelled to the ground; natural pastures are denuded; virgin soils are defertilized; coal and metals, oils and gases—all reserves of potential power—are wasted and exhausted.

To the capitalist profit maker positive evil may be a good. The stimulus of profit making works as potently in building up the vast industry of supplying futile or deleterious patent medicines, medicated wines, and proprietary cures for cancer, consumption, gout, or rheumatism, as in that of feeding the hungry and clothing the naked. The smuggling of opium into China or whiskey into the United States, like the manufacture of cocaine in a foreign factory, or the organization of gambling in another country—both being against the law in the country in which the capitalist happens to reside—are as legitimate sources of gain as the growing of wheat.

The process of distribution developed by the profiteering system might more fitly be described as an elaborate system of interception and blackmail. The open road from the producer to the consumer becomes obstructed by a series of piratical turnpikes set up by persons who have neither made the road nor mended it, but predatorily squatted on a portion of it and set up a trade in wayleaves.

The struggle for pecuniary profit among rival groups of capitalist entrepreneurs may be recognized as having been the most potent cause of international conflicts including, in partieuclar, the culminating conflict of 1914-1918.

This type of condemnation is not unlike the critieism of profit and commercerialism which has been made by leading thinkers of the Orient, such as Tagore and Gandhi. Tagore expressed himself as follows to Japan, in deprecation of their adoption of Western commercerialism:¹⁵

You had your own industry in Japan; how serupulously honest and true it was, you can see by its products—by their grace and strength, their conscientiousness in details, where they can hardly be observed. But the tidal wave of falsehood has swept over your land from that part of the world where business is business, and honesty is followed merely as the best policy. Have you never felt shame when you see the trade advertisements, not only plastering the whole town with lies and exaggerations, but invading the green fields, where the peasants do their honest labor, and the hill-tops which greet the first pure light of the morning. This commercerialism with its barbarity of ugly decorations is a terrible menae to all humanity. It is making the cult of self seeking exult in its shameless nakedness. It is carrying its own damnation because it is trampling into distortion the humanity upon which it stands. It is strenuously turning out money at the cost of happiness. The vital ambition of the present civilization of Europe is to have the exclusive possession of the devil.

These are strong words of condemnation. From this viewpoint, profit making is a vicious form of buccaneering, tending to make life “mean, nasty, and brutish.” But these words are the story from only one viewpoint. At the other extreme, the defender of capitalism lauds the

¹⁵ *Nationalism*, pp. 85-86, 128-129.

mechanism of profit to the skies. From his standpoint, the profit motive has fostered the great mechanical inventions, and has harnessed the countless discoveries of pure and applied science to the work of creating wealth. It has multiplied the efficiency of labor, and increased the per capita wealth and income of the masses. It has developed our natural resources and has made them contribute to human happiness. It has built beautiful cities and has dotted the country with comfortable homes. It has raised the standard of living and flooded even the common man with comforts and luxuries undreamed of by the people of two or three generations ago. It has developed electrical communication and has made possible the automobile, the railroad, and all other means of quick transportation. It has built better, cleaner, happier working places in which men may toil. It has made education available to every child, the rich and the poor alike. It has increased the length of human life, and has increased the health of the people. It has made us wealthy beyond compare, and has carried civilization to the highest point of achievement.

These are words of extravagant praise. They contrast sharply with the vehement criticism of socialism. Both viewpoints have an underlying element of fact, in that profit has both a good and an evil aspect. But both viewpoints are misleading, because they deal with one aspect alone, to the exclusion of everything else. Profit is neither so vicious as the socialist paints it nor so glorious as the capitalist paints it.

Against these radical and reactionary notions of profit as a background, we may undertake a more critical analysis of the matter. When the profit motive is viewed objectively, the following conclusions appear to be warranted.

(1) *The profit motive is continually changing.* It means something quite different today from what it meant a generation ago. It is not a fixed, inborn instinct, but a changeable, acquired habit. It is not an unalterable predisposition in human nature, but an alterable custom in human institutions. The profit motive is not the same yesterday, today, tomorrow, and forever, but is an evolutionary product. The loose notion that human nature is selfish, and therefore that profit is foredoomed always to be a set lure of greed and avarice is altogether out of keeping with the concepts established by modern psychology, history, and anthropology. These fields of science point to the conclusion that such a phenomenon as the profit motive is whatever the customs, institutions, and folkways of a particular time happen to make it. New customs and institutions will remake it into new manifestations and expressions. People become accustomed to seeking profit by following the business practices and customs of a given day and age. When these practices and customs develop and evolve, people become accustomed to seeking profit in wholly new ways. The profit motive is not a stereotyped, absolute motive written in human nature but is a plastic, modifiable motive written in contemporary institutions.

(2) *The area within which the profit motive is primary has been considerably narrowed in recent years.* Public education, public health service, community recreation, are expanding fields in which the chief incentive is not private gain but some degree of social gain. Scientific research and laboratory experiment rest in large measure upon intellectual curiosity and the creative spirit. The conservation of natural resources is a movement which tends to restrict the profit motive. Government ownership and municipal ownership of business enterprises tend to narrow the profit area. Regulation of public utilities by public service commissions curbs the acquisitive dispositions in that field. Consumer's coöperation has for one of its chief aims the elimination of the profit motive. A suggestive example of the displacement of acquisitive motive was the attitude toward military service in the World War. The rank and file of the troops were not in the service because they hoped for any acquisitive gain or private profit. The "make money" motive was not their dominating incentive. Of course, this is not to deny that many of the private interests at home leaned in the direction of profiteering, but it is to emphasize the incentives to duty of the military men themselves. These illustrations are sufficient to suggest that the profit motive is largely institutional in nature. By changing institutions, we can change motives. The profit motive can be narrowed in area, and social motives can be enlarged in area.

(3) *The profit motive is in process of being reshaped by certain definite forces at the present period.* These may be classified as voluntary and involuntary forces of change. The voluntary forces consist of the new codes of ethics, new trade customs, new conceptions of business as a profession, and new notions of business honor. Voluntarily, the various trades and industries are developing standards of business practice. These standards are an evidence of the desire of the profit maker himself to square his pursuit of profit with the well being of the community at large. Codes of ethics have been established. The underlying assumption of such codes is that profit making can have and should have beneficial results for the public as well as for private business. Advertising, for instance, has as an industry repudiated false and misleading representation of goods. Dishonesty has been rejected as a method of profit making, and the rejection has been made from within the business. Another tendency, closely allied to new codes and standards, is toward making business a true profession. This is, in large part, due to the influence of higher education upon business thought. Schools of business, liberal colleges, engineering schools, have imbued thousands of men entering the business field with the traditions and ideals of the professions. The profit motive in the hands of a man who views his business as a profession is wholly different from the profit motive in the hands of a man who views his business as rampant commercialism. Still another factor in voluntary reform of the profit motive has been the importance of good will in business. Business which does

not create good will toward the concern is unprofitable. The surest and truest way to create good will is to offer to the public goods of high quality and service of genuine benefit. The way to make profit is to make good will, and the way to make good will is to make good commodities and render good service. In all these ways, the profit motive is being reconstructed. New standards of business practice, new codes of business ethics, new conceptions of business as a profession, new realization of the necessity of good will, are making a new phenomenon out of the profit motive. Much of the old buccaneering and chicanery disappears. The new order calls forth new modes of behavior, spontaneously, at the initiative of the business men themselves.

Simultaneously, those portions of business which are recalcitrant are being whipped into line by certain forms of compulsion. The most potent form of compulsion is the law. Legislation and the decisions of the courts have built up a mass of commandments which business must not transgress in the pursuit of profit. Laws regulating the quality of products, the fairness and unfairness of competition, the terms of contracts, the rights of property, the exploitation of natural resources, the treatment of labor, and multitudinous other aspects of business procedure, have tended more and more to narrow the range of predatory and pernicious activity. Acts which injure the community come under the ban of the State. Profit making by disservice to the public is proscribed. Business crime and business immorality are increasingly under the control of the State. In addition to the law, various private social groups have been able to bring pressure to bear in the direction of better business practices. Labor unions, for instance, have directly or indirectly brought effective pressure to bear in the direction of better treatment of labor. Consumers' organizations have brought effective pressure to bear in the direction of better service to the consumer. Hundreds of such organizations exist, for the purpose of using influence to improve the conduct of business. Faced with such organized power, business has been compelled to adopt improved methods of operation. Business is on the defensive, and concessions are often made grudgingly, but the forces of progress have proved insurmountable.

(4) *Profit is not incompatible with service.* Profit and service are not antithetical terms. It is true that some profit is gained without rendering any service. But it is just as true that a great body of profit is gained by rendering service. Profit by service is in process of evolution. We are still far short of the ideal. We require much further progress. But we should not blind ourselves to the fact that progress is possible. The narrow notion that, with human nature as it is, progress in profit behavior is impossible, must be relegated to the scrap heap of exploded shibboleths.

(5) *Progress in the profit motive depends upon reconstructing the working rules of profit making.* The working rules of behavior can be modified to meet the requirements of social need and yet at the same time yield adequate profit to business. Profit by service does not neces-

sarily mean lessened profit. It may mean the same profit, but secured by a different method of conducting business. It may mean more profit, due to the discovery that methods which render service are the very methods which yield maximum profits. Therefore, in proposing that profit behavior be modified so as to meet the tests of service, we are not proposing that profit shall be altered in amount. Profit by service may be less, or it may be the same, or it may be greater, than profit by disservice. The profits of certain kinds of business would be less, but the profits of the new kinds of business which took their places would perhaps be more. The profits of predatory business would suffer, but the profits of useful business would benefit. The total of profit, the aggregate for all concerns might be the same as now, or more than now. The thing to be changed is the technique of making profit, not necessarily the amount of the profit to be made.

What are some of the alterations in profit behavior which might serve the demands of human welfare better, but which would not threaten to undermine the necessary volume of profits themselves? The following are mentioned as suggestive illustrations: Displacing commercial bribery by commercial honesty; remedying excessive inflation and deflation by stabilization of the price level; overcoming unemployment by unemployment insurance, and by control of the business cycle; solving the contrast between producing what pays best and producing what people need most, by giving to the people who need goods most the money incomes wherewith to pay for the goods, through a more democratic distribution of income; superseding the policy of producing as few goods as possible to be sold at as high a price as possible by the policy of quantity production of as many goods as possible at as low a price as possible; substituting for old individualistic chaos the organized co-operation of trade associations; abolishing old methods of suppressing labor and installing new methods of caring for the human element in production, such as personnel administration, and vocational selection; guaranteeing standards of quality instead of permitting shoddy and adulterated goods upon the market. Such a list could be extended at great length. The new policies do not involve less profits but they do involve more welfare. The improved methods of profit behavior do not endanger necessary profits but they do insure social well being. Progress is not a question of throttling and stifling profit; it is a question of stifling one kind of profit, predatory profit, and of stimulating another kind of profit, welfare profit. The warfare is not between profit and service, but between two kinds of profit—between profit which exploits the community on the one hand and profit which enriches the community on the other hand. The story of progress is a struggle for the survival of the fittest, and the great contenders are not profit and anti-profit, but sound profit and unsound profit. The profit motive is whatever the outcome of this struggle makes out of it. The new modes of asserting the profit motive can be good for the community and at the same time good for business.

This statement of the case rests upon a discrimination between profit and profit. Profit is a coat of many colors. Some profit promotes welfare; some profit subverts welfare. Changing institutions, changing codes of ethics, changing trade customs, changing market rules, changing concepts of professional conduct, changing personnel in the leadership of industry,—all of these factors tend to make profit more promotive and less subversive of welfare. This is the line of evolution in profit behavior. This is the direction of progress.

Conclusion.—The foregoing discussion is not to be taken as a defense of capitalism. It is not conceived in a spirit of defense of any particular form of economic society. Nor is it offered as in any way a refutation of the attacks of socialism. It is unsafe even to claim that one is scientific in method when such broad generalizations are being dealt with. But it is safe, and scientific as well, to apply a purely objective analysis to modes of behavior. Behavior with respect to the profit motive is an objective phenomenon. Viewing such an objective fact in light of what we know of psychology, history, and anthropology, we are bound to face the evolutionary character of profit behavior. The modes of behavior can and do change. This declaration above all others we can make bold to emphasize. This objective view of the processes of history in the field of profit making is indispensable to a realistic analysis of all propositions set forth by reformers and conservatives. It is the nugget of fact which underlies heresies as well as orthodoxies. No matter what opinions, creeds, and dogmas one may be drawn towards, this evolutionary aspect of profit behavior should be held in the forefront of reflection.

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CHAPTER XIV

PRINCIPLES OF CAPITAL AND INTEREST

Some Definitions and Distinctions.—Capital refers to that part of production which is not currently consumed. This excess of production over consumption accumulates over the years, and in spite of losses, wastage and depreciation, forms a growing stock of wealth. One form of capital is producers' goods, which includes all goods used in the production of further wealth, as for example, tools, machinery, buildings, railroads, raw materials. Another form of capital is durable consumers' goods, which includes all goods designed for consumption but which yield their uses to consumers only over a prolonged period of time, as for example, houses, automobiles, furniture. The economic system is characterized by a large equipment both of producers' goods and of durable consumers' goods, and it is this equipment which makes up the national stock of capital.

Interest is the price paid for the use of capital. Although interest is commonly quoted as a per cent or rate, this custom should not obscure the fact that interest is a price. As a price, interest is subject to certain influences of supply and demand, and under these market influences undergoes fluctuations and shows trends and movements in the same manner as any other price. Discount is a special form of interest, the chief distinction being that discount is interest deducted from the principal of the loan in advance, whereas interest proper is added to the principal at maturity.

In the everyday thought of the business man, capital is synonymous with money. The business man borrows money, figures interest as a rate on money, considers money "easy" when rates are low on the "money market" and "tight" when rates are high, and finally thinks of the borrowed money or credit as his business "capital." On second thought, however, it must be obvious that the real motive of the loan is not the money as an end in itself, but the money as a means of purchasing power over goods or property to be used in the conduct of business. What is actually borrowed is purchasing power over capital goods, and the amount of the money loan is gauged according to the amount of goods, services, and property which the business man requires for the furtherance of his productive enterprise. Clearly, then, if the money supply of a country were doubled, but there were no increase in the supply of those forms of property which are classed as capital, the mere money increase would not signify at all a capital increase. Much

confusion of thought can be avoided by keeping steadily in mind the distinction between dollars and capital goods.

Capital may be further classified as fixed and circulating. Fixed capital includes goods which are in more or less permanent forms, such as machinery, buildings, railroads. They are represented in the investment market by bonds, stocks, or mortgages. They require long-time loans and investments, and it is the banking function particularly of savings banks, insurance companies, and investment banks to accumulate the savings of the people seeking long-term investments. Within recent years the commercial banks themselves have stepped outside their strictly short-term commercial credit field and have directed a considerable part of their funds toward the investment market. Circulating capital differs from fixed capital. Circulating capital includes goods which are still in the process of production or distribution. It refers to raw materials, goods in the process of manufacture, consumers' goods which are in the hands of dealers. The whole mass of current materials in process of being mined, or transported, or manufactured, or marketed belongs to circulating capital. Loans to give purchasing power over such current capital come chiefly through the commercial banks of the country. Other terms often applied to this form of capital are "floating capital," "working capital," "liquid capital," and "commercial capital." Commercial loans are short-term loans, thirty, sixty, or ninety-day advances and three- to six-months loans being common.

A manufacturer borrows funds to buy certain raw materials and finance the operation of his factory. At the end of three months he has sold the finished product to a dealer, and the payment from the dealer supplies him with funds wherewith to meet his loan at the bank. The dealer, we will assume, borrows from his bank in order to pay for the goods. As soon as he can sell to retailers and collect, he has funds wherewith to retire his loan at the bank. The retailers, we will assume, borrow from their banks in order to pay for the goods, but as soon as they can sell to consumers and collect, they have funds wherewith to retire their loans at their banks. Short-term loans, goods being rapidly turned over, loans being liquidated, renewed and reliquidated all down the line from mine, farm, and factory to retail dealer,—such is the picture of circulating capital.

Corresponding with varieties of capital are varieties of interest rates. There is not one interest rate in the market, but many rates. The call rate is that on demand loans, used chiefly in the United States for speculation on the Wall Street Stock Exchange. The rates on short-term commercial paper differ because of differences in security or in length of term. The forms of commercial paper include banker's acceptances, trade acceptances, bills of exchange and promissory notes. Rates on different grades of bonds, preferred stocks and common stocks differ widely. Different capital markets have different interest rates, but although there are unique conditions of supply and demand controlling each rate there is at the same time a rough and general correspondence

between all rates, so that a general trend high or low is likely to be reflected in the course of time throughout all interest rates. There are individual deviations and fluctuations, but underneath these, a fundamental unity. The general movement of all rates is as important to study as the peculiarity of a particular rate.

Development of a Theory of Interest.—How to justify interest has been a most baffling problem in the development of economic theory. Aristotle wrote of interest, or “usury,” as an attempt to cause the “birth of money from money,” a scheme most unnatural and unjust from his viewpoint, for money by its very nature could not “breed an increase.” The Church during the Middle Ages, seeing usurers and pawnbrokers exact cruel terms on loans to the poor, condemned all interest as a sin against God, and a violation of the word of the Scriptures. Interest was prohibited, as being a parasitical charge due to fraud and force, without any service rendered. It was declared a price paid for time, a good common to all, and therefore a price without justice or warrant. However, in spite of theories and laws of condemnation, interest nevertheless flourished, and wherever markets and trade grew up, the merchants practiced the giving and taking of interest. With the expansion of commerce after the Middle Ages, there was a similar expansion of lending and interest taking. Gradually the force of practice and of commercial fact battered down the hostile theories, and the great thinkers of the classical economy built up a set of theories in vigorous defense of the necessity of interest. Modern business accepts interest as a matter of course, and discussion of the ultimate necessity or ethical soundness of interest is somewhat remote from the everyday point of view of the business world.

Various writers have stressed particular phases of interest theory. The *productivity* theory of capital emphasizes that interest is paid because capital produces new wealth. Labor working with tools and machinery can produce more than labor working without these aids. The difference between the productive capacity of labor unassisted and labor assisted by capital is, therefore, due to capital, and its owner is entitled to payment for this service. The payment takes the form of interest. This theory is limited as an explanation of interest since it does not explain why the value of the finished product is greater than the value of the original capital consumed in making it. To answer this question and arrive at the real nature of “productivity,” economists have evolved the theories described in later parts of this section.

In spite of this limitation, the emphasis upon the aid of capital in production has had the great beneficial influence of placing attention upon the vital importance of capital in modern industrial progress. The use of capital has enabled labor to increase the production of the industrial nations, and by so doing, has raised the standard of living for the laboring classes as well as for the owning classes. Böhm-Bawerk, in his classical analysis of interest and capital, termed the capital process of production “roundabout production,” since if a person desires a

certain good, it is best to "make first another good, and then, with its assistance, the good he wishes." That is to say, the most efficient method of making shoes is first to make tools and machines for the manufacturing of shoes, and then to use these capital instruments for the making of shoes. Such roundabout methods lengthen the time factor in production. By the time factor is meant not merely the time required to make the shoes after the machinery is constructed and ready for operation. The time factor begins with the construction of the tools and machinery, the production of the hides for leather, the erection of the factory building; and ends only when the shoes are in the hands of the ultimate consumers. The lengthening of the time factor from the beginning of the making of the capital goods to the end of the process of distributing the finished product, has lengthened the period of waiting required of capitalists, but it has greatly increased the nation's total productive capacity. By this method, with the same expenditure of energy, more or better goods can be produced. In considering ways and means of increasing wages in the future, we shall need always to bear in mind that fundamentally such an increase depends upon an increase in the volume of production by improved and enlarged uses of capital. Not less capital, but more capital and more and more effective forms of capital, give the sources of future progress for labor and for all other groups.

Many economists who have not found the productivity theory fully satisfying have been attracted by the *reward for abstinence* theory. Senior, for instance, stressed the universal temptation to consume immediately all the goods in a person's income. To abstain from this immediate enjoyment, the person must be offered some ulterior reward, and interest furnishes such a reward. This "postponement of consumption" enables business men to devote the unconsumed product to production during the period of waiting. Every man's impatience to consume his entire income as quickly as possible is said to be held in check by the prospect that in the future his saving will return to him not merely the amount originally saved but something over and above the original amount,—interest. Interest came therefore to be looked upon as a price paid for abstinence. Unfortunately the word "abstinence" had the connotation of some superior moral virtue. Indeed abstinence finally came to be vaunted as a splendid ethical or spiritual trait, and everybody who abstained in the hope of drawing interest came to be praised and lauded as a citizen who had rendered strenuous and sacrificial service to society. This viewpoint of capitalist society was not checked even though there were sharp logical attacks upon it by the Socialists, and such brilliant sarcasms against it as Lassalle's dubbing of the Rothschilds as the chief abstainers of Europe. If we abandon the term "abstinence," and use the term "waiting," the inference of any moral virtue is avoided. Waiting is scarce, and as in the case of any article showing scarcity of supply, a certain price is necessary to induce adequacy of supply. It is the scarcity of waiting and not any possible

moral virtue connected with it which commands a price in the form of interest.

In addition to the productivity and the abstinence theories, economists have worked out a theory based upon *undervaluation of the future*. In many respects it is closely similar to the earlier theories. The writings of Böhm-Bawerk have been devoted to an extended statement of this theory of the nature and necessity of interest. It is declared that we attach a less importance to future pleasures and pains simply because they are future, and in the measure that they are future. Present goods are, as a rule, worth more than future goods of like kind and number. The source of interest is this difference in valuation of present and future goods. That part of a person's income which is not spent for present consumption but is saved and devoted to production for a certain period of time is presumably to be paid back to the saver at some future time, when he may use it for consumption purposes. But the future joys of consumption are remote and vague, and in order to persuade the saver to wait for these joys and pleasures, it is necessary to assure him a greater future volume of goods than the volume of his present savings. This extra amount, necessary to make future or postponed consumption equal in attractiveness to present consumption, is the interest factor. Hence, interest rests upon a trait in human nature, a psychological fact, permanent and indestructible. If these phases of the theory are granted, then it follows that interest would be a necessity under Socialism or any other system, for it is grounded in a permanent fact in human nature itself. This entire theory employs a more or less metaphysical process of reasoning, and its conclusions are excessively abstract and ethereal. As a proof of the eternal necessity of interest, it is not sufficiently convincing, and it gives insufficient aid in analyzing the actual trends of the interest rate.

The Socialists have attacked all of the orthodox interest theories with the doctrine that interest is a form of exploitation of labor. Denying that interest is due to the "productive power" of capital or to the "sacrifice" of abstaining capitalists, Marx and other socialistic thinkers proclaimed that all value is produced by labor. Since labor alone is productive, labor is entitled to the full value of the product. But owing to the wage contract and to the domination of the capitalist employer, labor receives only a part of what it has produced. The capitalist takes the rest, and thus appropriates product which justly belongs to labor. Hence, a part of all labor goes to the production of a surplus of value over and above wages, which flows into the hands of the capitalists, and this surplus or unpaid labor is the source of interest. Interest is, according to this assumption, exploitation.

The weakness of this argument is the weakness of the exclusive labor theory of value. The doctrine that labor alone creates value cannot be accepted in modern economic theory. This does not mean, however, that there is no force in the socialistic assertion that under state control of

industry, interest would no longer be necessary as an inducement to the accumulation of capital. It is plausible in theory that the state could deduct from the gross product of industry an annual new capital fund, thus leaving available for distribution only the flow of consumers' goods. This policy of state saving would not be much different in method from the present capitalistic policy of reserving corporate surplus for investment in the business. Since this device of state saving would provide new capital, there would no longer be the necessity to pay interest as an incentive to private saving for investment. This theoretical proposition need not be attacked merely on the assumption that whatever appears under the socialistic title is necessarily false. In fact, state saving without interest payment appears logically sound as a theory. The flaw in the proposal rests in the administrative difficulties of the socialistic state. The practical impossibility of effective socialistic administration of capital in production is the severest criticism of the plan. We may recognize the attractiveness of the principle as an abstract proposal, but we cannot yield to its adoption in fact because we must face the practical obstacles to administrative execution of the plan by the socialistic state. These obstacles are treated in the separate discussion of Socialism, and need not be repeated at this point.¹

Another angle of attack on interest is made by the fiat money theorists. They would have the government extend free loans to approved classes of producers, by the issue of paper money backed by government decree. This money issue would aim to break the monopoly of credit, which now rests with the banks. It is argued that the only reason why the banks are able to exact an interest charge is because of their monopoly control over credit. Monopoly creates an artificial scarcity of money, and the only means for breaking this scarcity is for the Government to issue fiat money to deserving borrowers. There are, however, severe obstacles to such a scheme. First, it provides no adequate method for the selection of deserving borrowers. Under the present system the banker applies a rigid selective test to applicants for commercial loans, and credit is granted only to business men of proved capacity. The interest rate eliminates those producers who are incompetent to earn sufficient returns to meet their capital costs. By the time the Government had developed an administrative machinery for separating the fit from the unfit borrowers, it would practically have duplicated the mechanism we already have in the form of the banks. The cost of this mechanism could not be substantially less than the cost of the present banking mechanism, and there would be nothing gained in economy. Second, fiat money issue provides no safe method for regulating total supply and demand of capital. The bank rate at present adjusts supply to demand. It prevents excessive over-borrowing and over-lending. Fiat money issue offers a check to neither excess, but rather, encourages both. It makes debts costless, and the use of capital

¹The objections here raised apply particularly to that branch of socialistic thought which is often referred to as "state socialism."

free. Free debts would inevitably result in reckless debt creation. The lack of an adequate regulator of total supply and demand of capital would necessarily lead to wide confusion and chaos. Third, the fiat money proposal confuses paper money with capital. Money is purchasing power over capital, but is not the capital itself. An increase in money may be accompanied by a decrease in real capital. What usually happens from an increase in money by the fiat method is inflation of the currency and a sharp rise of the price level. Inflation is the inevitable outcome of fiat issue by any methods contrived up to date, and inflation notoriously disarranges production instead of helping it. The attention given to the fiat theory of loans is due to the support of the notion by certain farmers and business men since the war, especially by Henry Ford.²

Interest a Price Governed by Supply and Demand.—Having indicated the limitations of some of the previously mentioned theories and the fallacies of others, we are ready to consider a positive theory of interest and capital. The most useful method of analysis is to consider interest as a special case of price, governed by the same forces of supply and demand as operate in the determination of other prices. With this approach, interest is a special application of price theory. Instead of discussing the general necessity or justification of interest, we accept interest as an established fact in business. Our concern then is to define the nature of supply and of demand, to trace their effects in determining the movements of interest rates, and to trace in turn the effect of changes in the interest rates upon supply and demand of capital. Our point of view is distinctly the behavior of the interest price in the capital market of supply and demand.

What is to be understood by supply of capital will depend upon what phase of supply is of chief importance for a particular purpose. First of all, capital supply may be considered as capital goods. It is that part of the country's wealth which is used in further production or which is consumed only gradually and over a long period of time. Capital supply thus refers to physical objects which require time for their construction and use, and interest is the price paid for the right to use these capital goods. The volume of railroad equipment, of factory construction, of residential building, of iron and steel output, of machinery, or of electrical apparatus gives a measure of this phase of capital supply. Indexes of the physical volume of current production of these goods, and indexes of the total stock of them accumulated in the past, give a statistical tool for estimating the trend of supply of physical capital. Consumers' goods actually in consumers' hands, such as food or clothing for immediate consumption, would not be listed as capital supply. But the same goods while they are in the hands of wholesalers or retailers, or in process of production, are listed as capital.

Second, capital supply may be considered as a supply of saving or waiting. The person who saves part of his income and invests it in capital goods performs the economic service of waiting. Durable con-

² See W. T. Foster and W. Catchings, *Money*, Chapter 8.

sumption goods, such as houses or automobiles, give up their uses slowly over a longtime period. Production processes of industry extend over a longtime period. Any person who spends his entire income for current enjoyment and consumption has no part left to devote to durable capital goods. He does no waiting. Only those persons who refrain from consuming in the present, have any funds available for investment in durable capital goods. By waiting until some time in the future to use this saved income for consumption enjoyment, these savers divert purchasing power to the capital market. This purchasing power gives to business men the use of physical goods which are necessary to modern industry. Waiting is, for this reason, a creative economic service. It is the supply of waiting by the nation as a whole which gives rise to the supply of capital goods for the nation as a whole. But this indispensable service of waiting is scarce relative to the need for it. Being scarce, it will not be done on a large enough scale unless there is a price paid for the service. Interest is this price. The scarcity of the supply of waiting therefore explains interest from the supply side.

The price paid for waiting is an incentive to non-consumption of income. Interest is paid to persuade people not to spend too much for present needs and pleasures. *A nation's supply of capital is commensurate with its excess of production over consumption.* To keep this excess adequate, interest is paid. Some excess there would be without interest, or with a lower rate of interest, but the actual rate is paid to maintain a sufficient excess to meet the demand for capital. *In order to increase the rate of supply of capital, it is necessary either to increase the volume of national production or to decrease the volume of consumption.* Interest is paid to persuade people to produce more and consume less. This concept of the excess of production over consumption is important for an understanding of the fluctuations of capital supply and of interest rates.

Third, capital supply may be viewed from a financial standpoint. On the money market, the terms "money" and "capital" are used interchangeably. This common use of terms should not, however, blur a clean-cut distinction. Borrowers seek money in the money market, not for the sake of the money as an end in itself, but for the sake of what the money will buy. And what they intend to buy is some form of property or capital. Economists usually consider that actual specie money, as gold or silver, is itself capital, in the sense that these metals are produced goods used for further production. Paper money and bank credit, however, are not capital in even this sense of the term. They represent simply and merely purchasing power over the actual capital desired. Borrowers want money or credit because it will give command over the real things they want, capital itself. Supply of capital is not supply of dollars but supply of goods and property values.

The dollars in the money market come from two main sources: savings out of income, and credit manufactured by banks. The dollars which represent savings are governed in volume by the willingness of the people

to wait and save. The dollars which represent bank credit are governed in their volume by gold reserves and loan and deposit ratios. There is no automatic coördination of dollar supply with capital supply. The number of dollars may be tripled with no increase in capital supply, or even with a marked decrease. Inflation would occur, price levels would change, but capital would exhibit no corresponding multiplication, nor would the oversupply of money cause a fall in interest rates. The countries of Europe which printed trillions of paper marks or rubles did not find that the vast supply of money units lowered the interest rate. On the contrary, they found to their immense loss and sorrow that capital became more and more scarce under the pressure of inflation, and interest rates rose to unprecedented heights. Money gives command or purchasing power over capital, but too much money weakens this purchasing power without bettering the supply of capital. This distinction is vital, since no fallacy is more common than the notion that an increase in money will automatically bring an increase of capital, and that a scarcity of capital is due to a scarcity of money.

A fourth phase of capital supply is the supply of capital values. These values are not based upon machines as machines or goods as goods, but upon machines and goods as parts of going business concerns. Capital is, from this viewpoint, not merely a mass of physical goods, but this plus a mass of property rights, good will, and other intangible assets. To an individual corporation, this mass of property values receives interpretation at the hands of accountants. They regard capital as excess of assets, tangible and intangible, over liabilities, or as net worth. To the nation as a whole, this version of capital treats the business capital of the country as equivalent to the consolidated net worth of all business concerns in the country. Assets, property values, net worth, these are the capital concepts brought in by the régime of the corporation and the accountant. To be realistic, our use of the term capital must harmonize with prevailing business facts, and certainly it is an outstanding fact in modern business that capital includes intangible as well as tangible assets, in a going concern, at the net worth of the business. This modern view is amplified later in the present chapter.

Each of the four phases of capital supply mentioned is important for particular lines of analysis. It depends upon the purpose of any particular inquiry which phase is most pertinent. Whether we view capital as durable physical goods, or as excess of production over consumption due to waiting and saving, or as a loan fund of money and credit, or as capital values of assets, tangible and intangible, of going concerns, depends upon which concept is most useful for the particular purpose in hand.

Having defined the nature of supply, we turn to demand. It is obvious that demand may be viewed from the same four phases which have been discussed under the head of supply. That is to say, demand for capital is a demand for the thing supplied, and this thing may alternately be viewed as *goods, waiting, dollars, or property values*.

But our study of demand must go beyond this point, and indicate the central purpose of demand. We must know the reason why business men demand capital. This reason lies in the prospect of profits. The demand for capital is a demand for the wherewithal to engage in business and to make profits. It is the quest for profits which creates demand, and whatever causes fluctuations in profits, present or prospective, causes fluctuations in demand. Demand will be keen when the opportunity for profits is good, and demand will slump when the decline of profits is imminent. Inasmuch as the prospect of profits varies sharply with the business cycle, it follows that the demand for capital is subject to the fluctuations of the business cycle.

Gross Interest Distinguished from Pure Interest.—The rate of interest as quoted in the market is a gross rate. It is made up of three elements, *pure interest*, a *risk payment*, and an *expense factor*. The pure interest rate is that which is merely and strictly a reward for saving. It is often called true interest or net interest. The risk payment is often termed an insurance premium to cover the hazard of loss, but is more accurately to be considered as a profit payment to induce investors to take the chances of investment. The expense factor is payment for the work of selecting and attending to investments. It is compensation for the supervision of savings and loans. The first element, the pure interest rate, is the rate necessary to attract savings to the ultra-conservative investment, where risk is negligible and the bother and detail of looking after the investment are small. Government bonds come the nearest of any form of security to meeting this requirement, and consequently the rate of interest on such bonds may be considered approximately as the pure rate of interest. The second element in gross interest, namely, risk, increases in the more speculative loans until it often becomes the main factor in gross interest. The high rate on loans of doubtful safety is due to the necessity of offering a reward for the assumption of the hazards involved. The third, or expense, remuneration, varies with the conveniences of investment and the need of supervision, but commonly is a decidedly minor part of the total interest rate. Owing to these three elements, the fluctuations of gross interest rates may be due to fluctuations of supply and demand of saving, to fluctuations of risk and hazard, or to fluctuations in the expense of investing. The commercial rate of interest, the money market rate, is the gross rate. It is necessary to have in mind the component parts of that rate in order to analyze its trends and fluctuations.

These elements of interest are inextricably interwoven with many other price payments in the business world which do not pass expressly under the label of interest. For instance, dividends on stock shares combine a relatively large profit payment for risk with a net interest payment. The risk factor is usually more pronounced in preferred stocks than in bonds, and in common stocks than in either of the other two. Business profits consist mainly of the reward for risk or management, but also contain a substantial return in the form of pure interest.

Commercial rent includes interest charges on the property, as well as cost of upkeep and economic rent. Another necessary distinction is necessary between the nominal interest rates on such capital instruments as bonds and the actual interest rates commonly termed "net yield." Nominal rates are those appearing on the face of the bond, and are figured as a per cent of par. If the bond sells above par, at a premium, or below par, at a discount, the net yield is the return figured as a per cent of actual selling or market value. The net yield is of chief concern to the investor. Interest factors appear in these various forms, and it is necessary to recognize the elements of interest no matter under what label or title they may be found.

Capital Under the Corporate Régime.—The corporation, since it has become the dominant form of business ownership, has profoundly affected some fundamental ideas about capital. For instance, the corporation has brought to the foreground the importance of the concepts of corporate capital, capitalization, and capital stock. These are three distinct, though closely related things. The corporation thinks of its capital as its net worth, or its excess of assets over liabilities. Its assets include intangible as well as tangible items. To suggest the scope of this concept of capital assets, without however making any attempt at technical completeness, there is given below a list of some leading classes of corporate assets.³

FIXED ASSETS

Real estate
Leaseholds
Mineral and timber lands
Equipment and machinery
Furniture and fixtures
Patterns, drawings, etc.

CURRENT ASSETS

Cash
Investments, temporary and permanent
Notes receivable
Accounts receivable
Inventories

INTANGIBLE ASSETS

Good will
Patents
Trade marks
Copyrights

DEFERRED ASSETS

Organization funds
Discount on stocks and bonds
Other items

These items suggest that the corporate concept of capital unites, for practical business purposes, the view of capital as assets with the view of capital as physical goods. It recognizes the working relations between pecuniary and physical capital, and emphasizes the modern business usage of terms.

Capitalization is ordinarily used to refer to the sum of the par values or nominal values of stocks and bonds. It may have no correspondence whatever with the actual market values of the stocks and bonds outstanding. Capitalization is, therefore, a fiction of accounting, an artificially assigned valuation of capital stock and bonded debt. It gives no clue to the amount of physical capital goods owned by the corporation,

³ E. A. Saliers, *Accountants' Handbook*, p. 333.

nor to the amount of money in the business. What it comes nearest to giving a clue to is the actual or prospective earning power of the business. That is to say, a corporation with an earning power of \$600,000 annually might capitalize, using a rate of six per cent, at \$10,000,000. The actual invested capital might be only a half, a third, or a smaller fraction of this amount. There are so many different ways of estimating and measuring earning power that the only precise clue to an individual corporation's capitalization is a detailed analysis of the particular case.

Capital stock represents the interests of the owners or proprietors of the business, but usually does not include the bonds or other permanent debt of the business. The capital stock is by no means a measure of the "capital" of the corporation, and it would be utterly misleading to base any estimate of "capital" merely on the nominal or assigned value of the capital stock. We may draw the conclusion, therefore, that neither capitalization nor capital stock gives a reliable measure of capital. They must be checked and supplemented by estimates of actual invested capital, by market values of securities, by calculations of assets and net worth, and by many other important considerations.

The era of corporate capital has given a special importance to those capital assets which are classed as "intangible." The concept of capital as strictly and only physical goods was the main point of emphasis in classical economics. It is still an important phase of capital, but it is no longer to be viewed as the exclusive phase. Invested capital, in corporation parlance, includes much more than investment in tangible goods. It includes as well investment in immaterial assets, and for a large part of modern business, these immaterial assets are just as important as, and often more important than, the material assets. This modern invisible capital is commonly discussed under the broad term, "good will." Good will may be defined as "the value of an established business over and above the value of its material assets."⁴ It arises from the "excess earning power enjoyed by a business over and above that met with in similar enterprises."⁵ Its amount is calculated by deducting from the actual earnings of the business a fair return on the material assets, and capitalizing the difference at a certain per cent. Hence, *good will is capitalized excess earning power*. It is capitalized surplus earnings—surplus over and above normal return on tangible capital. It appears chiefly in the form of common stock on the securities markets, and is bought and sold on those markets just as any other capital stock.

A corporation's capacity to produce such excess earnings may be due to superior management, trade marks and trade names, reputation created by advertising or unusual service, patents and secret processes, desirable location, chance and luck, power to restrain competition, government favoritism, tariffs, franchises and other special privileges. Some of these factors bring increased earning power by increased production

⁴ Hugh R. Conyngton, *Financing an Enterprise*, Volume 2, p. 341.

⁵ Edmond E. Lincoln, *Applied Business Finance*, p. 157.

of goods. But it is equally true that many of them bring increased earning power by restriction of production. In those cases, earning power increases as a result of disservice to society. This brings out a distinction of vital importance, a distinction between pecuniary gain and productive gain. Earnings are pecuniary. Production is physical. Earnings are dollars. Production is goods. No small part of the strategy of realizing on good will consists of making more dollars of profit by making fewer units of goods for the use of the country. To the extent that this strategy is carried out, good will earnings are in the nature of monopoly profit.

It is of the essence of the business view of capital that it includes a capitalization of good will earnings. Business savings and personal savings are used to purchase common stock based upon nothing but good will. The return on this investment of savings, although bearing the label, dividends, consists in substantial part of a pure interest return. That is to say, capitalized good will may be bought with savings and may yield an interest return. These characteristics of good will are identical with the basic characteristics of physical forms of capital. Consequently, economics cannot shunt this modern business fact to one side, and exclude it from the category of capital. No matter how intangible or immaterial good will capital may be, it must be admitted to the definition of capital if we are to face at all the realities of the present business world.

Capital Values and Property Rights.—The modern business or corporate view of capital is not intelligible unless several rather recent business terms and concepts are understood. It is imperative, for instance, to distinguish clearly between things and the values of things. This is a difference between the classical view of capital as so many physical units of goods, and the modern view of capital as values based upon tangible and intangible assets in a going concern. It is a difference, in brief, between the *physical* aspects of capital and the *pecuniary* aspects of capital.

Owing to this distinction, the value of the capital wealth of the nation may and does fluctuate very widely, although the physical wealth may in the meantime remain unchanged. When securities on the stock exchange rise or fall in price, the valuations of the corporations fluctuate widely, although there are no corresponding changes in their physical wealth. Waves of prosperity and depression bring changes running into many billions of dollars in the value of the nation's capital, with no corresponding changes in capital things.

The question that arises at this point is: What governs the rise and fall of capital values, irrespective of the quantity of physical wealth? The answer may be given in the following quotation from Wesley C. Mitchell: "The present and anticipated future profits of corporations are by far the most important single factors in determining the prices of their shares."⁶ When the classical economists used the word "productive" in the phrase "productive capital," they meant goods pro-

⁶ *Business Cycles*, p. 172.

ductive of more *goods*. When we use the word "productive" in the present day realistic or business sense, we mean goods and intangible assets productive of *profits*. The values of corporate capital rise or fall in proportion as corporate profits, present and prospective, rise or fall. Business capital holds its market value strictly as a pragmatic capitalization of profit making capacity. It is to be emphasized that this capitalization is not the purely nominal or fictitious capitalization assigned by the corporation to its own security issues. Rather, it is the merciless judgment of the investment market on what the profit making capacity of the corporation is likely to be. It is the capitalization of real or imputed earning power.

Another term which it is necessary to relate clearly to the corporate view of capital is "property." Former economists often dismissed property rights not based directly on physical goods, as mere "acquisitive capital." However instrumental to purely individual gain such property rights might be, they would not be admitted to the category of real capital, that is, capital goods. But in modern business, this disposition of property rights appears both fanciful and futile. It is clear that the value of even the capital goods is merely the value for acquisitive purposes. There is no other value of capital than its value for profit making purposes. The notion that real capital is non-acquisitive is utterly remote from the facts of the business world. Whether we measure capital in physical units of tons, bushels, or yards, we cannot begin to think of it as a part of modern business until we think of the values of these tons, bushels or yards. And as soon as we think of values, we are dealing strictly with a capitalization of acquisitiveness or profit making capacity.

Property consists of rights to income. The income value of all these rights is the value of capital supply. Instead, therefore, of dismissing property rights as merely incidental, we must make them a corner stone of our whole understanding of capital. To quote W. I. King, whose statistical estimates of capital supply are cited in a later chapter: "We must not lose sight of the fact that when wealth is expressed in terms of value, the value is a measure of property rights and not of a quantity of physical objects or of an amount of utility."⁷

Capital Values in the Going Concern.—The values of units of physical capital cannot be measured as independent facts, detached from going business concerns. A private corporation is not merely so many tons of pig iron, so many square feet of floor space, so many miles of steel rails, and the like. It is these physical things, *organized in a going business concern*. The physical things plus the property rights organized and embodied in the going business concern, give the clue to the corporation's capital. If a number of machines are put on the market, their value on the machinery market is one thing. If the same machines are installed in a running factory, their value as income earning property of the going concern is quite another thing. The machines acquire their

⁷ *Journal of the American Statistical Association*, September, 1922, p. 313.

value for the purposes of corporate capital by being coupled with a mass of intangible property rights and a managing organization. We have defined interest as the price paid for the use of capital, but we must emphasize that by "the use of capital," we mean its use in going concerns. There is no other "use."

Although the foregoing analysis is presented from the viewpoint of the individual corporation, the same principle applies to the nation's business as a whole. The State itself is a going organization, and confidence in the stability and permanence of its power to continue its State functions is an essential feature of the valuation of the nation's capital. When Russia suffered the overthrow of the going organization of the State the capital wealth of the nation sank to a mere fraction of its former value. The detached units of things were still there, but security of property rights was gone, business morale was gone, confidence in order and stability was gone. The going concern value of the national capital was wiped out. Apart from the influence of the State, the business system viewed as a private organization constitutes a going system. The accumulated stock of engineering knowledge, the fund of technical and scientific information, the confidence in the soundness of currency and credit, the education and character of the population, the habits of efficiency, workmanship, and discipline, the ideals and ethical standards of leaders and executives, the permeating spirit and morale of employers and employees,—these factors combine in a vast network of invisible threads to give life to the going concern of the nation's business as an entirety. In the broad and fundamental uses of the terms, going plant, going concern, going business, going law and order, dominate the modern concept of capital.

Before leaving this subject, a caution may be interposed. There is no intent to disparage the production of actual goods for human use and welfare as a primary aim and endeavor. There is no intent to discount the significance of indexes of physical volume of production and of capital. Elsewhere in this book the author makes intensive use of these concepts. The crucial point here is that the only way to make any progress toward the attainment of those urgently desired ends is to recognize business facts as they are at the present day. And if there is any outstanding fact in modern business, that fact is that production for use is purely incidental to production for profit, and physical production is only one means toward pecuniary gain. Progress in and through the present business system can come only in so far as production for profit can more and more completely be made synonymous with production of goods for human use. To understand the task of progress, therefore, it is necessary to recognize the primacy and dominance of capital values, good will, prospective profits, property rights to income, and the private and public going concern.

Marginal Saving and Savers' Surplus.—Capital and interest are subjects to which marginal theory has been applied, and it is essential to obtain a view of the marginal approach. In studying marginal supply,

we shall consider chiefly the waiting and saving end of the capital process. In studying marginal demand, we shall consider chiefly the viewpoint of demand for capital for purposes of making profits. For purposes of brevity and simplification it is necessary to adhere to these viewpoints, but marginal theory applies to all phases of capital supply and demand which have been presented.

Interest rates resemble other prices in that they are uniform prices paid to savers. Savers making equal investments acquire equal interest returns. But even though the rate is the same to savers, this does not indicate that their willingness to save is the same. Many who receive six per cent would save just as much if they received only three per cent. Doubtless many who receive six per cent would save just as much as if they received no interest return at all. Large groups would save any way, save in order to build estates for themselves and their families, or for other good and sufficient reasons.

It would even be true for no small class of people that the lower the interest rate the more they must save. For instance, if a professional man sets himself to the task of building by the age of retirement an estate of \$50,000, compound interest will take care of a large part of the accumulation. The less the rate of interest the more he will have to save out of pocket. Although this type of reaction would obtain for many people, yet the probability is that it would be more than offset by the majority tendency to save somewhat less when the interest rate became less. The latter reaction would be the dominating one.

It follows that only a certain fraction of all savers require the full market rate of interest as an inducement to save. Others would save as much or more at a lower rate. The classes which require the full going rate of interest as an inducement to save are called the marginal savers. They are the least willing savers. They are that fraction of all savers who would positively save less if interest rates were less. Consequently, if society needs and demands their savings, society must pay interest rates to make its demand effective. It is the only way to persuade marginal savers to save. Even though billions of dollars would be saved at a lower rate, society must pay the higher rate to all classes of savers in order to secure an adequate grand total of capital supply. Hence marginal savers set the rates for all savers. The most willing savers receive just as high a rate as the least willing savers. Those who would gladly save at a lower rate do not have to do so, because society requires the additional savings of the marginal class.

Those who would save for less interest, but who as a matter of their good fortune do not have to do so, receive saver's surplus. Saver's surplus may be defined as the difference between what a man would be willing to save for and the rate which he actually receives. If a man would save a thousand dollars at 4 per cent interest, but in fact receives a market rate of 6 per cent, the difference of 2 per cent is essentially surplus or bonus. The marginal saver receives no surplus, because he is the man who would be unwilling to save at a lower rate. Only the

intra-marginal saver receives saver's surplus. We will assume that in a given year the country needs total savings of new capital to the amount of \$12,000,000,000, and to secure this amount offers interest rates which converge around 5 per cent. It may be true that ten billion dollars would be saved at 4 per cent. In order, then, to secure the extra two billions of savings, it is necessary to pay the full rate of 5 per cent on the entire twelve billions. The two billions of marginal savings would set the 5 per cent rate for all savings, and the ten billions of intra-marginal savings would enjoy a saver's surplus. Although this illustration is hypothetical and is not intended to measure at all the actual proportion of savings which is marginal, it nevertheless is true to the essential principle and concept of marginal savings and saver's surplus.

Just what the proportion of marginal savings to total savings is has not yet been measured by the statistician, and economists differ widely in their estimates. The traditional economics commonly estimates that marginal saving is the great bulk of all saving. More recently, however, economics shows a tendency to reduce estimates of marginal savings to a small fraction of the total. The recent view is partly borne out by the observation of the fact that a great part of saving fluctuates independently of the interest rate. It is observable that savings often increase very greatly when the interest rate is falling, and that savings often decrease very greatly even though the interest rate rises sharply. Fluctuations in the supply of savings seem in large measure to defy the influence of changes in the interest rate. This being true, it seems necessary to conclude that only a relatively small portion of all saving is at the margin, and therefore directly affected by changes in the marginal rate.

This implies further that a relatively large part of interest is saver's surplus. Society makes a huge excess payment to the bulk of savers merely because the minority of least willing savers require the high rate. This excess payment is unearned income, a saver's rent. It is payment for something which would be done without payment, a bonus to the most willing savers. Consequently, saver's surplus is peculiarly suited to taxation levied on unearned income. In the chapter dealing with taxation this problem is dealt with more in detail, but at this point it is important to understand the nature of saver's surplus as a field for equitable taxation.

The problem of saver's surplus further requires an analysis of motives, habits, institutions of saving. Where do savings come from? Why do people save? The marginal saver saves for the sake of the interest rate. His is a financial motive pure and simple. But the man below the margin, the man to whom interest is in part or in whole saver's surplus has other important motives besides the financial one. The poorer classes in the wage-earning groups set aside funds for a "rainy day," for family need and emergency, for a decent burial, for old age. They are not thinking about interest rates, but of family and personal needs. The savings of more prosperous wage-earning groups are actuated

primarily by motives of family betterment. Their savings largely pass into savings banks, and deposits of that nature bear no direct ratio to changes in the interest rate. Higher interest rates cannot materially increase their savings, because the pressure for immediate gratification of urgent family wants eats up the great bulk of their income. Lower rates cannot materially decrease their savings, because they are saving for family, not acquisitive motives. Middle-class groups, professional groups, and small business men accumulate estates for the sake of their families or to build up their business enterprises, to the end that as "men on the make" they may win prestige and eminence among their fellow townsmen. Family care and social standing in the community are the predominant motives to middle-class saving. It is here that it is so often true that a lower interest rate will actually cause a larger principal sum to be saved out of pocket. As for the well-to-do classes, it has been well said by one authority, "The higher income classes—say of over \$50,000—save mechanically, with little or no sacrifice of present wants."⁸ Since they save thus automatically, it follows that the interest rate is not the primary incentive. It is often easier for them to save than to spend.

In addition to personal savings, we have large business savings. Corporate surplus, for instance, is reinvested in the business, not mainly for the sake of interest, but for the sake of business expansion and profits. Bank loans for capital purposes represent the banks' capacity to manufacture credit, which in turn rests upon specie reserves. Saver's effort to practice thrift for the sake of earning interest is not involved. It is bankers' effort to manufacture credit at a profit by means of earning interest which is involved. Reserves and fundamental business conditions govern the supply of bank credit more completely than such a factor as movements of the interest rate. As for the motives governing bank deposits, the situation is summed up as follows by a banking authority: "That savings are prompted in practically all cases by reasons other than the rate of interest is the general belief of bankers."⁹ In light of this survey of motives and habits of saving, it is necessary to conclude that the bulk of the supply of savings enjoys a huge saver's surplus. Probably the main portion of the total interest payment in modern business should be set down as surplus.

Any attempt to analyze the trend of interest rates must therefore take into account the fact that fluctuations in the supply of savings are fundamentally due to causes outside the interest rate. What some of these causes are will be discussed in the next chapter.

Marginal Productivity and Producer's Surplus.—We turn now from the supply side of marginal analysis to the demand side. Demand for capital comes from men who wish to engage in business. They demand capital for its aid in the production of goods and profits.

⁸ A. B. Wolfe, *Quarterly Journal of Economics*, Volume 35, pp. 23 ff.

⁹ L. D. Woodworth, *Economic World*, Jan. 22, 1921, p. 118.

Although they pay a uniform rate of interest for the same kinds of capital, nevertheless they do not earn a uniform rate of profits on that capital. Some producers earn high profits, some earn low profits, some earn no profits at all, although all alike pay substantially the same rate of interest. Those who earn no profits at all, but just barely cover their interest charges and other expenses, are the marginal users of capital. If interest rates were higher, these marginal producers could not cover expenses and would be forced out of operation.

The term marginal is applicable not only to the producer as an individual but to the product as a unit of returns. Those units of capital which are used under least effective conditions will bring barely enough returns to cover interest and other charges. A high rate would force out of use these least effective units of capital. Marginal productivity of capital is the productivity of the least effective unit. Other units of capital there are above the margin, which could easily stand a higher rate of interest, but they do not have to stand the higher rate because the marginal rate becomes the uniform rate to all borrowers.

The producers who secure, in addition to bare interest charges and other expenses, an extra return, are the recipients of producer's surplus. If interest rates were higher, they could still bear the burden and continue in business. But they do not have to pay a higher rate because the rate for all borrowers is governed by the rate necessary to keep the marginal concerns in operation. The most effective users of capital, out of their producer's surplus, could afford to pay higher interest, but, as a matter of their good fortune, they do not have to do so because the least effective or marginal users of capital would be squeezed out of business by any higher rate. The producer's surplus, or profit above interest, is a leading incentive to business activity. If a concern can borrow at 6 per cent, and make actual gains of 20 per cent, the producer's surplus is highly attractive. But if a marginal concern, borrowing at 6 per cent, can make only 6 per cent, there is no surplus, and any increase in the interest rate will force such a concern out of operation.

The proportion of all users of capital who are at the margin is great enough so that a change in the interest rate tends to have a distinct effect upon the demand for capital. There are enough units of capital used at the margin so that a rise in interest rates tends to check demand for capital. Hence, demand for capital is highly sensitive to changes of the rate. This sensitivity is in marked contrast to the very sluggish response of supply of capital to changes of the rate.

The producer's surplus is in part earned income due to superior efficiency of management; but also in part unearned income due to monopoly, privilege, and chance. Unearned producer's surplus is a proper field for taxation, just as unearned saver's surplus is a proper field for taxation. A considerable part of surplus commonly accrues to the producer through no particular virtue of his own. Some of this

unearned surplus should be made to flow into the channels of public revenue. This matter is examined more in detail in the chapters on taxation.

Bringing together the supply and demand sides of the whole matter, we find that *the rate of interest tends to reach the zone where marginal productivity of capital is sufficient to induce the marginal unit of saving*. This provides a theory, not of absolute equilibrium, where an exact interest rate just balances supply and demand of capital, but of the minimum and maximum range of interest rates within which interest movements and bargainings must take place. This range of rates determines what share of income must be distributed as interest, in contrast with the shares which must go to rent, wages, salaries, or profits. Marginal saving sets the minimum below which interest must not fall, if marginal savers are not to be driven out and the volume of savings reduced. Marginal productivity sets the maximum above which interest must not rise, if marginal producers are not to be driven out, and the volume of production curtailed. Between these upper and lower limits, there is room for bargaining and variation, but the limits are there and tend to restrain, at any given time, the range of bargaining within their borders.

The present chapter has dealt largely with concepts and principles. These tell us what kinds of forces influence capital and interest, but they do not tell us to what degree these forces operate. They do not measure fundamental movements. They are not quantitative. They show us what the more important problems are. They introduce and state the problems. They offer a general guide for approach to the problems. But they cannot come to concrete, quantitative answers to the problems. To achieve this end, it is necessary to give the principles a factual content, and to measure the tendencies at work. This is the purpose of the following chapter.

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CHAPTER XV

STATISTICAL ANALYSIS OF CAPITAL AND INTEREST

A factual basis for analysis of capital and interest is needed in order to determine the significance of abstract principles and to estimate the extent of actual movements and fluctuations.

The Estimated Value of the National Wealth.—The United States Census Bureau has estimated the total wealth of the United States in 1922 at \$320,803,862,000. The accompanying table itemizes the main forms of wealth and offers certain comparisons with previous years.

Composition of the National Wealth.—A salient feature of our national wealth is that more than one-half of it consists of real estate. Land, improvements, and buildings total more than \$176,000,000,000. Not far from one-half of this sum is the value represented by buildings, and, as previously defined, buildings come within the category of capital. In the absence of reliable information it is difficult to estimate how much of the remaining value is represented by improvement of land—perhaps not more than one-third.

Economists are not agreed whether to include land unimproved as capital or not. The classical economists, for the most part, exclude land, for the reason that land is not a produced good. They start with a definition of capital as “produced goods used in the further production of wealth.” Although land is used in the further production of wealth, it is not itself a produced good. The business view of capital, on the other hand, includes land. Although land may not be a produced good, nevertheless the land must be bought with savings. The conditions and peculiarities under which land values are produced are in some ways unique, but this fact does not justify an exclusion of land values from the concept of capital. Property rights in land are of paramount importance in understanding the realistic business view of capital. These property rights involve a mass of claims to interest income. The market for land mortgages and other land credit instruments is a capital market, influencing interest rates and influenced by them, absorbing savings, and affecting in marked ways the demand for new investment.

It is important to note that increases in the value of real estate from year to year are often mainly appreciations in price rather than increases in physical supply. These appreciations of value reflect in part changes in the general price level, but more fundamentally than that, they represent a capitalization of the income from land. In this

respect land capital value is arrived at by the same method as is used in determining corporate capital value. Capitalization of earning capacity, present and prospective, is the governing factor.

The proportionate part of machine capital in the national wealth is significant. The modern business order is so commonly referred to as the machine order of production that it would be natural to expect machinery to be a very large part of the capital of the nation. The machine dominates the technology of production; the machine multiplies the output of labor; the machine makes possible progress in the standard of living: what more natural, therefore, than to assume that the value of machinery bulks large in the nation's wealth? This is not only a popular assumption, but one commonly made in business circles. Nevertheless the estimate of national wealth shows that such an assumption is erroneous. It shows that manufacturing machinery, tools, and implements represent less than 5 per cent of the total value of national wealth. The supply of capital is not, therefore, the supply of manufacturing machinery primarily. For every dollar of capital going into manufacturing machinery, there are twenty dollars of capital going into other forms. Demand for capital is not mainly a demand for disposal or use of machinery, but for disposal or use of the other forms of capital. The burden of interest is not the burden of the machine, but is the burden of the many other forms of property. This is the age of the machine if we think of the marvels of invention and the powers of production. But if we think of the comparative values of the different forms of capital, the value of machine capital is strikingly small. The machine technology which dominates and guides the more than 90 per cent of the national capital in its other forms is the product of this small fraction of total capital, which machine capital constitutes. From a physical and technological viewpoint, machinery is the chief form of capital; from a pecuniary viewpoint, it is a minor form.

A similar condition appears in agricultural production. From the fact that America has attained supremacy in the use of machinery, one might infer that machinery constitutes the main form of farm capital. There is no denial of our supremacy, but it is necessary to ascertain more definitely the importance of machinery in determining that supremacy. Farm machinery is less than 5 per cent of the value of all farm capital. Land and buildings are the main forms of capital, measured in value. The farmer's main interest charge is not on account of tractors, reapers, mowers, plows, or other tools, but on account of land and buildings. In the money economy of modern agriculture, machinery has comparatively slight pecuniary worth. Physically and technologically, of course, it is all important.

To study the relative position of machine capital from another angle, we may observe that transportation capital is almost double in value the combined total of agricultural and factory machinery. Railroads, motor transport, street railways, shipping and canal facilities

are far greater in value than all the farm and factory machinery in the country. The capital directly required for the making of goods is only half as important, from the pecuniary standpoint, as the capital required for moving goods around from place to place.

From the standpoint of production of goods, the machines are paramount. But from the standpoint of ownership and property values, they are of minor account. This is the machine age, but the national wealth is mostly land, buildings, transport, materials, and property rights.

The Growth of Capital.—(1). *Capital Values.* Capital values are measured in the price levels prevailing in any given year. They are not a measure of growth of physical productive capacity unless they are adjusted to changes in the index of the general price level. But for the purpose of measuring the sum of property rights *at any one time*, the price measure of capital values is indispensable. Ownership is the basic concept of modern business, and ownership runs in terms of dollars of value. The following estimates by the Census Bureau run in terms of the price levels of the current years:

Year	Total Wealth	Per Capita Wealth	Index Numbers of Price Level (1885 = 100)
1850	\$7,135,780,000	\$307.69	103
1870	30,068,518,000	779.83	169
1890	65,037,091,000	1,035.57	94
1900	88,517,307,000	1,164.79	94
1912	187,739,071,090	1,965.00	115
1922	320,803,862,000	2,936.00	178

(2). *Physical Capital.* Physical capital is a mass of goods instead of a sum of values. The growth of the capacity of the nation to produce goods for human use is fundamental to social progress. The total real income of the whole people can advance no faster than the advance in the power to produce more wealth for human consumption.

King has estimated the total increase of physical capital from 1909 to 1918, a nine-year period, at 33 per cent.¹ This would indicate that physical capital in the United States has had a rate of increase from year to year of between 3 and 4 per cent. This corresponds with E. E. Day's estimate of the annual increase of the volume of production at approximately 4 per cent.^{1a} Volume of production evidently increases

¹ *Journal of the American Statistical Association*, Volume 18, pp. 463-466.

^{1a} The war period slowed up the process of capital accumulation. W. I. King estimates the physical growth of the capital wealth from 1912 to 1922 at 11 per cent, or barely more than 1 per cent each year. This modest increase in physical quantity of wealth contrasts with an increase of 72 per cent, or more than 7 per

at about the same rate as physical capital. This is but an expected correspondence, since capital goods are an index of productive capacity. If this rate of increase is converted to a per capita basis, it makes the annual per capita growth of capital about 2 per cent. This trend smooths out seasonal, cyclical or irregular fluctuations, and shows the long-time average. The significance of this statement of trend is the fact that productive capacity is increasing faster than population. Since productive capacity here refers to output of goods, and not merely to exchange values, it reflects our ability to raise the standard of living for the people as a whole.

Although this average trend is interrupted by many temporary deviations and fluctuations, it is indicative in the truest sense of the word of the long-time tendency of material progress. It applies chiefly to peace times, since peace times may broadly be considered normal times. We must consider, however, what are the effects of war upon capital accumulation. During a war, intense thrift is practiced and gross savings are enormous. But these savings are spent for war purposes and for the destruction of capital. The result is that a nation's physical capital tends to deteriorate during a war period. During the year 1918, the American people saved about \$22,000,000,000 in the aggregate. Liberty loans, war taxes, private thrift, combined to create a huge total of gross savings. But, during the same year, estimates of the actual physical capital of the country show a decline of nearly \$2,000,000,000. War savings are not productive savings. They leave the nation poorer in productive capital at the end of a war than at the start.²

For the other belligerents, the deterioration of capital was much more severe than for the United States. The capital wealth of Germany deteriorated more than 20 per cent during the war period. This deterioration does not include the loss of territory or foreign investment, but merely the impoverishment of domestic capital equipment. This impoverishment was further reflected in the fact that the per capita income in Germany after the War showed a falling off of more than one-fifth, as compared with a pre-war year.³ The other warring powers showed a capital impoverishment in varying degrees, but in all cases severe enough to have very damaging effects upon the post-war condition of their peoples.

(3). *Capital in Principal Classes of Industry.* Particular classes of economic activity show varying rates of capital growth. The following estimates, based upon the report of the Research Council of the National Transportation Institute, compare capital growth in our four basic industries for 1900 and 1920:⁴

cent each year in money value of wealth. See Report by the Bureau of the Census on "Estimated National Wealth," in *Wealth, Debt and Taxation*, 1924, p. xiii.

² See W. R. Ingalls, *The Wealth and Income of the American People*, especially Chapter 15.

³ H. G. Moulton, *Germany's Capacity to Pay*, pp. 191-196.

⁴ Report No. 1, February, 1924, *The Place of Transportation in our Industrial Structure*.

GROWTH OF CAPITAL

(1920 = Index Listed in All Columns. 1900 = Base Index of 100.)

Industry	Persons Engaged in the Industry	Capital in the Industry, Money Value	Physical Output of the Industry	Physical Capital per Employee	Physical Output per Employee
Agriculture	104	381	138	138 (a)	133
Manufacturing ..	208	495	228	140 (b)	110
Mines	170	302	231	138 (b)	136
Railroads	199	193	{ 234 * 292 †	{ 150 (c) 117 (d)	{ 118 125

* Tons originating.
† Revenue tons one mile.
(a) Money value adjusted to price index.
(b) Primary horsepower per worker.
(c) Tractive power.
(d) Carrying capacity of freight cars.

The above table affords many interesting comparisons for study, but there is space here for only brief mention of a few outstanding interpretations. In money value, manufacturing capital shows the greatest increase of any industry with its index of 495. In physical capital per employee, however, manufacturing shows only the same approximate increase as the other classes of industry. In physical output per worker, manufacturing shows only a 10 per cent increase, whereas both agriculture and mines show an increase of one-third. The physical capital per worker has increased at about the same rate in all four industries, but the physical output per worker shows wide differences of increase. In the latter respect, manufacturing output per worker has increased least of all, transportation next, agriculture next, and mines most of all. One explanation often given of the lower increase in manufacturing output is the introduction of the eight hour day during this general period of economic development. This explanation may be correct, although statistical evidence is insufficient either to affirm or deny it.

In 1921 Ingalls made a study of the value of plant and equipment per worker in various manufacturing industries, and calculated that two thousand dollars was the approximate amount of plant and equipment per worker. Certain industries, such as shoe manufacturing, showed a capital value per worker as high as five thousand dollars. Great variety exists from industry to industry in the value of capital per employee, and the suggestion of an average carries with it the caution that there are many and wide deviations above and below such an average.⁵

Relative Capital Wealth of Various Nations.—The United States has the greatest capital wealth of any nation. This position of leader-

⁵ *Wealth and Income of the American People*, pp. 122-128.

ship holds not merely for the total value of wealth but also for the amount per capita. Because of her leadership in this respect, the United States enjoys the greatest per capita income of any nation. The high standard of living possible in the United States is directly traceable to the fact that each producer uses more machinery, more mechanical power, more capital equipment, than does the producer in any other nation. The more capital available to assist the workman in production, the greater his output; and the greater his output, the greater the possibility of higher income and higher standards of living. The following table presents comparisons between seven nations at the beginning of 1914. That year is taken because it is the last year in which money units in the several countries were on a comparable gold parity. Relationships have probably changed in the subsequent decade, but not sufficiently to lessen the value of the comparisons. The estimates are based upon studies made by J. C. Stamp.⁶

Country	Estimates Based on Work of	Approximation to Accuracy	Total Amount (millions of dollars)	Amount per Capita (dollars)	Income per Capita (dollars)
United Kingdom ..	Stamp	I	70,564	1,547	243
United States	Official, King	II	204,393	2,063	335
Germany	Helfferich, etc.	II	80,540	1,012	146
France	Pupin, Théry	II	58,398	1,474	185
Italy	Gini	III	21,801	622	112
Russia	Neymark	IV	58,000	413	...
Japan	Stamp	IV	11,679	214	29

I, possible error of 10 per cent; II, of 20 per cent; III, of 30 per cent; IV, of 40 per cent.

The very low per capita income of Japan stands in sharp contrast to the figure for the United States. The density of population in the Orient is so great that the introduction of modern capital as an aid in production has not yet effected any marked elevation in the standard of living. From the figures given in the table, the outstanding conclusion is that the increase of capital equipment is the essential means to an increase of real income, but that if population grows at excessive rates, the per capita income will remain very low in spite of the use of modern productive capital. Economic progress is a race between increase of productive capital and increase of population. The United States has raised the standard of living because the rate of capital growth has been greater than the rate of population growth.

⁶ *Journal of the Royal Statistical Society*, Volume 82, p. 491. The table at the bottom of page 273 brings comparisons as to total amounts of wealth per capita in various countries down to 1922.

Fundamental Causes of Fluctuations in Supply of Capital.—We have observed in the previous chapter that supply of capital does not respond very sensitively to changes in the interest rate. Fluctuations in the rate of accumulation of capital must be traced primarily to other causes. The foremost of such causes is the volume of the nation's productive output. Capital accumulation is greatest when the country's productive plant is running to capacity. For example, when annual production increased 18 per cent between 1913 and 1916, savings increased 133 per cent. During 1920 and 1921 savings were low in volume largely because the state of depression meant a falling off in volume of national production. During 1922 and 1923, savings increased again because during those years the country increased its volume of production. It is to be noted, too, that a small per cent of increase in the index of production tends to be accompanied by a much larger per cent of increase in the index of savings. Every increase in production is likely to lead to a more than proportionate per cent of increase in capital accumulation. Every decrease in production is likely to lead to a more than proportionate per cent of decrease in capital accumulation. The basic method for increasing savings is to keep production to the maximum capacity.

Secondly, capital accumulation tends to be largest when business profits are largest. When business profits slightly more than doubled

Wealth of U. S. compared with other principal countries of the world in 1922, 1912, 1890, 1870; compiled from U. S. census reports and from estimates of statistical experts in the respective countries designated.

	In Million Dollars			
	1922	1912	1890	1870
United States	320,803a	186,299a	65,037a	30,069a
United Kingdom	88,840t	79,297t	53,352o	40,000f
France	67,710t	57,075n	43,799o	33,092e
Germany	35,700j	77,783j	49,500q	38,000q
Italy	25,986t	23,030c	9,733o	7,300e
Spain	29,319u	No data	11,193o	10,512e
Switzerland	4,567g	3,030q	2,404e	No data
Russia	No data	56,140c	28,225e	13,626o
Poland	17,000a	No data	No data	No data
Latvia	1,000a	No data	No data	No data
Finland	3,600a	No data	No data	No data
Netherlands	8,260g	4,827c	4,769o	No data
Canada	22,095d	10,980c	4,744o	2,871e
Mexico	7,900r	No data	No data	No data
Cuba	8,000r	No data	No data	No data
Argentina	13,178g	11,680p	2,477e	No data
Brazil	13,020g	No data	No data	No data
Chile	3,064g	No data	No data	No data
Peru	4,000r	No data	No data	No data
India	21,960t	No data	No data	No data
China	19,087g	No data	No data	No data
Australia	9,689g	6,113h	6,667o	No data
New Zealand	1,756t	No data	730o	No data

a, Official; b, Crammond; c, Stamp; d, Coates; e, estimate; f, Griffen; g, Moody; h, Knibbs; j, Helfferich; k, Neymark; m, Barthe; n, Théry; o, Mulhall; p, Bunge; q, Encyclopedia Americana; r, Pan American Union; s, Armament Conference; t, Based on Crammond's estimate in 1920; u, Banco Urquijo.
(Data compiled by National City Bank of New York.)

between 1914 and 1916, business savings more than quadrupled. When corporation profits declined slightly between 1916 and 1919, corporation savings declined one-half. When corporation profits declined yet more sharply in the depression of 1921, corporate savings fell to about one-quarter of what they had been in 1919. The recovery of corporate savings in 1923 was traceable in large measure to the fact that corporate profits in that year were again high.

High production, high profits and high savings bear close relations to each other. Statistical studies thus far made do not show exactly the correspondence between the three factors, but they do indicate a clear relationship. When both profits and production are at a maximum, capital accumulation also tends to be at a maximum.

A third fundamental determinant of fluctuations in volume of savings is the degree to which habits of thrift prevail. Thrift is not a pre-ordained impulse so much as it is a matter of class custom, national education, acquired habit. Thrift depends upon the institutionalized behavior of people. This habit is subject to variations, such as are illustrated by periods of extravagance and wasteful expenditure and periods of extreme economy. As people of various classes become accustomed to saving for investment, and the corporations to the practice of reinvesting their profits in business, the mere force of customary practice carries saving along by its own momentum.

In summary we may observe that, although supply of savings is somewhat affected by high or low interest rates, nevertheless the fundamental determinants of the wider fluctuations of savings are variations in the volume of production, the amount of business profits and prosperity, and the institutionalized practices and habits of thrift.

Fundamental Causes of Fluctuations in Demand for Capital.—Demand is much more sensitive to changes in the interest rate than supply. A high rate acts as a brake upon increasing demand. But just how high the interest rate must go in order to act as a check on demand is a question of how impelling the fundamental forces underlying demand happen to be at the time. The problem, therefore, is to examine the fundamental forces of demand, in their relation to the interest rate.

First, the prospect of profits gives the greatest impetus to demand. Business men demand capital when they believe that by the use of the capital they can gain liberal net earnings. During a large part of the last decade of the 19th century, profit margins were narrow, with the result that business men had scant inducement to use new capital. Demand was low, and largely due to low demand, the interest rate fell to a very low point. Between 1900 and 1913, on the other hand, profit margins increased, and business men, lured on by the prospect of good earnings, entered an effective demand for new capital. This demand was reflected in a rise of interest rates on high grade bonds from around $3\frac{1}{2}$ per cent to 5 per cent and more. When profits are high during the prosperity stage of the business cycle, business men

translate the outlook into a heavy demand for capital and the interest rate rises. Conversely, during depression, with profits on the wane, demand falls off and interest rates follow the decline. *Demand, therefore, centers around the anticipation, the hope, the prospect of profits.*

Second, the progress of technical inventions and discoveries determines demand. In the decade and a half from 1900 to the outbreak of the World War, fundamental technical changes occurred in the United States which set up a firm demand for new capital. The electrical and the automobile industries, with all their allied lines of production, developed rapidly and vast amounts of capital were required for manufacture, for installation, for repair, for maintenance of output. Population moved from country to town and city, thereby setting up a growing demand for dwelling houses. Moreover, during this period the kind of house demanded involved more elaborate equipment than previous types, and this higher grade of construction added to the demand for more and more capital for housing enterprises. Public utilities during this period multiplied their investment five times over, and expanded at a rate which demanded a high rate of capital accumulation. New and better types of office and factory buildings became the order of the day. New highways were constructed on an unprecedented scale. The period was marked by an outburst of technical progress, and a consequent high demand for capital. At the time, supply of capital was increasing materially, but demand outran supply. The future demand for capital will depend greatly upon future inventions and discoveries which revolutionize production processes or add new forms of capital goods to our present standards.

Third, the conditions of peace or war determine demand. War gives rise to an urgent demand for savings, and therefore has the inevitable result of pushing interest rates up. This stiffening of demand is accompanied by a scarcity of productive capital, since practically all of a nation's savings in time of war are devoted to the destructive purposes of military necessity. The series of wars, including the Spanish American, the Boer, the Russo-Japanese, the Balkan, and finally the World War, involved both a world-wide destruction of capital and a world-wide demand for more capital, all of which could have only one effect on the United States as on the other nations,—to raise their interest rates to abnormally high figures.

Briefly put, the nature of demand must be studied from the standpoint of the fundamental sources of demand. These include chiefly the prospect of profits from the use of capital, the growth of technical improvements, and the conditions of war or peace. The growth of population, of course, causes a corresponding growth of need for capital, but this factor tends to make itself effective in the capital markets only in so far as it creates the prospect of profits from the use of additional capital, or stimulates technical progress, or gives rise to war or peace.

Effect of Variations in the Interest Rate upon Supply and Demand.—The previous discussion has dealt particularly with the effect

of supply and demand upon the interest rate. We may now consider more particularly the effect of changes in the interest rate upon supply and demand. A rise of the interest rate seems to have very little efficacy in increasing the supply of savings, unless the more fundamental conditions governing supply are themselves favorable. That is to say, unless production is high, profits good, and habits of thrift steady, the rising interest rate seems to be more or less ineffective as a means of swelling the supply of savings. No matter how much the interest rate is raised, if production is low and profits low, the volume of saving tends to fall off. Perhaps it would be true to add that, under such conditions, the rise of interest rates makes the decline of savings less than it otherwise would be. We are not concerned to deny that the interest rate does have an influence, but rather to stress the fact that other influences on supply are more fundamental and give a much sounder basis for prediction of interest movements.

As has already been noted demand is much more responsive to interest variations than supply. Low interest rates, for instance, during periods of depression, tend to stimulate business to recovery. High rates, during periods of boom and inflation, tend to check the undue expansion and curb the excessive demand for capital. Interest is a most important regulator of demand. By manipulation of discount rates, central banks in other countries and Federal Reserve banks in the United States are able to regulate, to an important degree, the demand for capital.

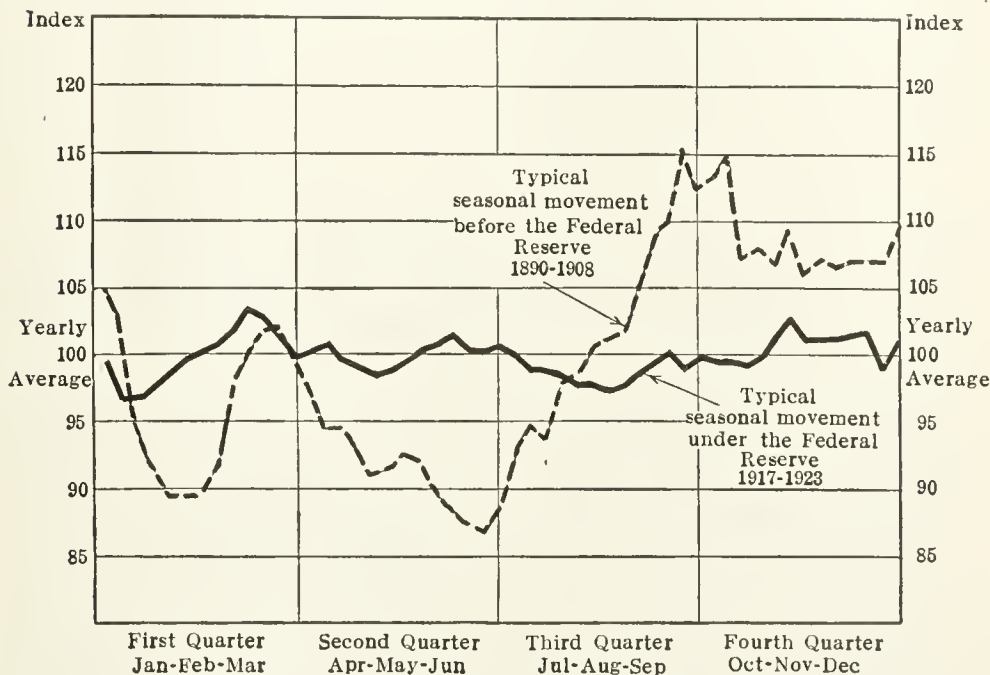
Principal Types of Fluctuations of Interest Rates.—Four principal types of movements occur in interest rates, these types being similar to other price movements in the economic field. The types of movements may be listed as seasonal, cyclical, secular, residual.

The seasonal fluctuations are indicated by the chart on page 277.

It is to be noted that the Federal Reserve Banks have had the effect of greatly modifying the seasonal fluctuations. The years 1917-1923 are not satisfactory years for calculating seasonal variations, since much of this period is affected by war and post-war abnormalities. But we may draw some fairly reliable conclusions from the pre-war years if the assumption is made that seasonal movement has been reduced one-half since the establishment of the Federal Reserve system. Seasonal movements apply chiefly to short-term commercial interest rates. Bond rates show a practically negligible seasonal variation. The normal variation for commercial rates is an easing of rates in January, a mild upward turn during February and March, a down trend through the summer, a stiffening of rates in late summer, a high point reached by the end of October or early November, and a slight down turn in November followed by firmness until about the end of the year. These seasonal variations are important in interpreting month to month changes in money rates, both because they determine the cost to business men of their funds for working capital and because they influence any

predictions or forecasts of future turns of the interest rate. At the present time, under Federal Reserve moderation of seasonal changes, rates may be one-seventh higher at one period of the year than at another. A variation of rates which may alter the cost to the business man of his loans by as much as one-seventh is a very important cost item.

OPEN MARKET INTEREST RATES FOR 60-90 DAY COMMERCIAL PAPER
IN THE UNITED STATES *

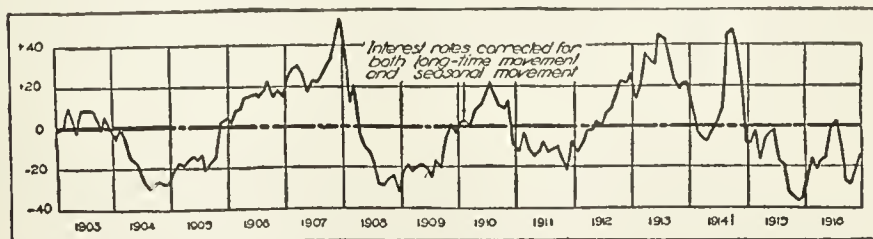


* From report of the Federal Reserve Board, Sept., 1923.

Cyclical fluctuations of interest rates are indicated by the accompanying diagram. The rates represented are those on choice double-name 60-90 day commercial paper. Seasonal and secular influences have been eliminated by statistical processes, and the chart shows therefore the cyclical fluctuations free from the other two influences:

CYCLICAL FLUCTUATIONS OF INTEREST RATES: CORRECTED FIGURES *

(Percentages)

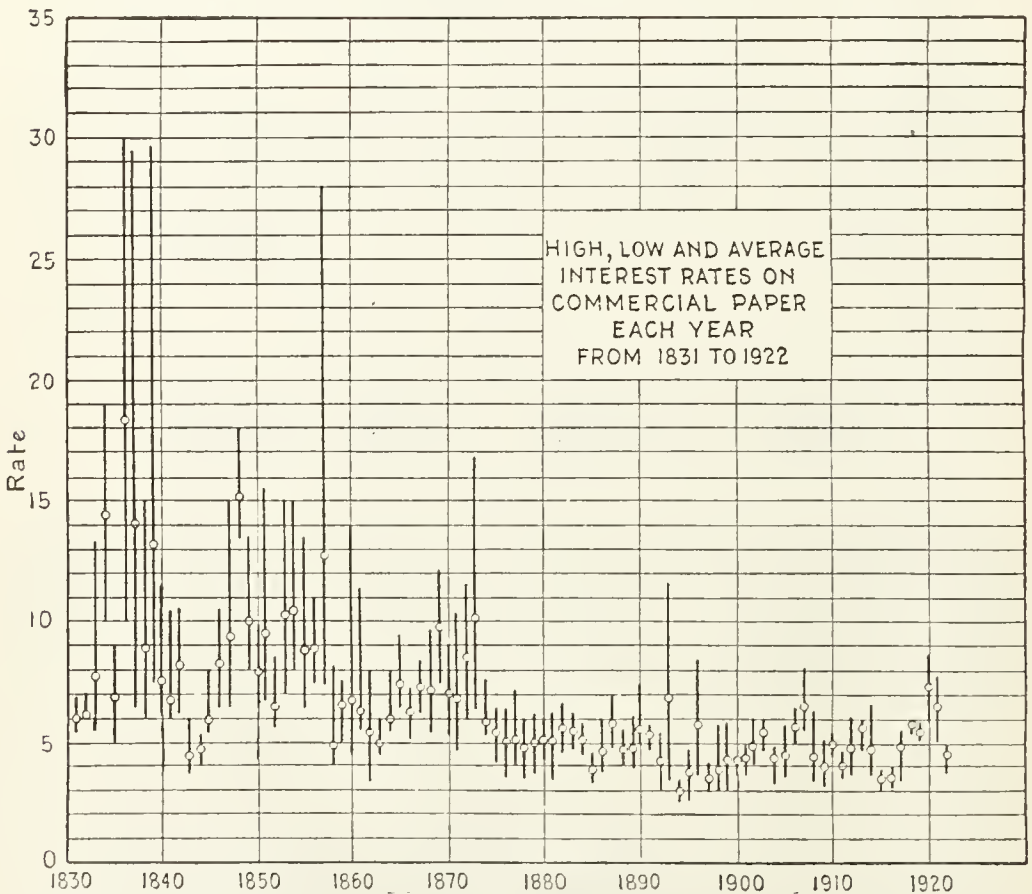


* See H. B. Vanderblue, *Problems in Business Economics*, p. 31. This diagram is based upon the research of the Harvard University Committee on Economic Research.

Interest rates tend to lag behind commodity price movements in the business cycle. They rise and fall more slowly than prices. When prices rise, lagging interest rates mean low business costs. As prices reach their crest, interest rates are likely to continue their ascent. The result is heavy interest costs, and a general financial strain among banks and business concerns. As this strain makes itself felt, prosperity comes to an end, and crisis and depression ensue. High rates check prosperity. On the other hand, when rates have fallen and money is cheap, business tends to be stimulated. Interest rates play a most important rôle in the major movements of business cycles.

The long-time trend of the interest rate is indicated by the following chart:—

LONG-TIME TREND OF INTEREST RATES IN THE UNITED STATES *



* W. Randolph Burgess, *Management and Administration*, Volume 6, p. 4. Small circles show average rates each year; tops of lines show highest and bottoms of lines lowest rates. Figures for early years are taken from a study by Dr. F. R. Macaulay.

Although the interest rate here referred to is for short-term commercial paper, it nevertheless indicates accurately enough the trend of

bonds and other securities, since over a period of years commercial rates and investment rates tend to move together. Commercial rates average less than bond rates over a period of years, the difference amounting to about $\frac{1}{2}$ of 1 per cent.

Two important observations may be made on the long-time trend: first, the average of interest rates was much higher in the earlier years of the country's history than in the later years; second, there has been a marked reduction in the extreme fluctuations above and below the average. With regard to the first observation, the explanation lies largely in the fact that interest involved a heavy risk factor during the early speculative and undeveloped stages of economic history. High rates are characteristic of a country passing through the early stages of industrial development. A further explanation lies in the fact that banking organization was uncertain and the mechanism of a money market undeveloped. This condition hampered the supply of capital funds, since people will not freely offer their savings unless the channels of investment promise a high degree of security and permanence. The second fact noticeable in long-time trend, namely, the lessening of extreme fluctuations, is particularly due to the development of improved banking organization. The establishment of the national banking system during the Civil War was an important step toward ironing out extreme fluctuations, and the establishment of the Federal Reserve System in 1914 carries this stabilizing tendency to a higher degree of completeness.

The chart shows the year 1894, with an average rate of 3 per cent, to be the lowest in our financial history. During this period, prime railroad bonds sold to yield only 3 per cent, and 2 per cent New York City bonds sold at a premium. The general opinion at the time seems to have been that the country had developed to a point where a permanent low interest rate was inevitable. But shortly thereafter began an outburst of technical progress calling for new capital in the automobile and electrical industries, in a broad building program of better residences, and bigger offices and factories, in expansion of railway and other public utility equipment, and in improved highway construction. At the same time profit margins increased and the prospect of profits gave a new impetus to demand for capital. Moreover overseas wars added to demand for capital at the same time that the destruction due to these wars increased the scarcity of capital. This new outburst of demand set in motion an upward trend which lasted until 1920, and which brought about practically a doubling of interest rates over the low point of 1894. The trend since 1920 has been downward, with supply of capital outstripping demand. Our productive capacity runs well in excess of consumption. Whether the decline of interest rates will continue until a new low point is reached is a question impossible to decide now, but the possibility of such a decline deserves to be kept in mind.

This possibility raises further the question: How low can the interest rate fall? If the interest rate can fall to zero, the supply and demand of capital must undergo revolutionary changes. Gustav Cassel examines

this problem in some detail, and holds that the rate cannot fall below $2\frac{1}{2}$ or 2 per cent at the lowest. Any lower rate would result in a tendency for people to live off their capital by the purchase of annuities. This consumption of capital would create a scarcity of capital, and the scarcity would tend to push interest rates upward again.⁷ There appears no likelihood that the long-time trend will fall to a 2 per cent level in the near future, but if it should the check which Cassel mentions would probably be effective, although it is impossible to predict with absolute certainty that this would be the case. It is chiefly significant for present purposes that in developed countries interest fluctuations seem to keep usually within a range of about 3 to 6 per cent. These rates are the approximate upper and lower limits to interest trend in such countries as the United States or England. Backward countries, fiat money countries, warring countries, countries in the throes of inflation exhibit higher ranges, but normal developed countries adhere closely to the 3 to 6 per cent range.

International variations in the interest rates are illustrated in the following table:⁸

REDISCOUNT RATES OF BANKS OF ISSUE IN TWELVE COUNTRIES, MARCH, 1925

Name of Country	Rediscount Rates Per Cent
New York	$3\frac{1}{2}$
Holland	4
England	5
Sweden	$5\frac{1}{2}$
Italy	6
Denmark	7
France	7
Japan	8
Germany	9
Poland	10
Hungary	$12\frac{1}{2}$
Austria	13

Capital Accumulation by Various Income Groups.—An important question in this field is: What saving is done by different classes and groups of people? One income classification is: employees, farmers, business men. King's studies indicate the following savings for each of these groups, stated as an annual average for the decade 1909 to 1918:—⁹

27,000,000 employees, with average income of \$690 each, made average savings of \$40 each, a total of slightly over \$1,000,000,000, or about one-fifth of the total national savings.

6,400,000 farmers, with average income below \$850 each, made average savings of over \$100 each, a total of slightly over \$670,000,000, or about one-eighth of the total national savings.

⁷ *A Theory of Social Economy*, pp. 224-248.

⁸ From *Monthly Review*, Federal Reserve Bank of New York, April, 1925, p. 3.

⁹ *Journal of the American Statistical Association*, Volume 18, p. 468.

3,300,000 entrepreneurs and other property owners, with an average income of \$3,400 each, made average savings of \$1,100 each, a total of a little less than \$4,000,000,000, or about two-thirds of the total national savings.

Employees, representing over 70 per cent of the income receiving population, and receiving more than one-half of the national income, saved only one-fifth of the national savings. The average employee saved only about six cents out of every dollar of income. The average farmer saved about twelve cents out of every dollar of income. The average entrepreneur and property owner saved about thirty-three cents out of every dollar of income.

It is obvious that the bulk of saving in the United States is done by property owners and business men. And yet it does not follow that the sacrifice made by this class in saving is as onerous as the sacrifice of the employees in putting aside their relatively small savings. The burden, abstinence, sacrifice and self-denial borne by the employees in saving a small fund out of their small individual incomes is commonly very heavy. Although the business groups, for the most part, must undergo some self-denial and forego some pleasures of spending, nevertheless their thrift is not of a sort which constantly eats into the minimum necessities or comforts of life.

A large part of business savings has now a highly impersonal nature. The main form of such savings is corporate surplus. Corporate surplus is merely a part of net earnings, set aside for purposes of reinvestment in the business. Knauth has estimated the annual savings for a number of years from corporate surplus as follows: ¹⁰

	Millions of Dollars
1910	1,200
1911	900
1913	1,000
1914	500
1915	1,600
1916	3,900
1917	3,400
1918	1,700
1919	2,000
1920	1,000
1921	500

The years of high savings from corporate surplus are years of business prosperity, whereas the years of low savings are years of business depression. The main factor in variations of corporate surplus is the business cycle. The years 1914 and 1921 show very low savings in corporate surplus for the reason that these were years of slump and depression. It is a safe conclusion, therefore, that the necessary way to stabilize corporate savings is to stabilize business movements generally and to modify as much as possible the up and down movements of the business cycle. In a normal or average year, the savings from

¹⁰ *Journal of the American Statistical Association*, Volume 18, p. 164.

this source amount to approximately one-quarter of the total savings of the nation.

Although the corporation is the dominant type of business, nevertheless a vast number of individual business concerns are not organized in corporate form. These business concerns do a great amount of direct saving by putting part of their earnings back into the business. Farmers, for instance, save large amounts in the form of earnings put into farm improvements. This direct saving by non-corporate business approximates in normal years about 15 per cent of total national savings, but in years of prosperity much exceeds this average, and in years of depression falls much below it. This form of savings, like corporate surplus, therefore, depends chiefly upon the fluctuations of the business cycle. The combined savings of corporate and non-corporate business, relative to total national savings, are estimated by King as follows: ¹¹

Year	Per Cent of Total Savings
1909	46.91
1910	51.57
1911	45.91
1912	51.16
1913	49.21
1914	33.80
1915	44.30
1916	55.52
1917	71.30

The savings of employees and middle class people are reflected largely in insurance assets, savings bank funds, building and loan association funds, independent purchase of dwelling houses, and, to a degree, bonds in the open market. Savings from personal incomes are highly important, and do not fluctuate as severely in the turns of the business cycle as do business savings. Only a minor part of the national savings directly enter the investment markets. Ordinarily probably more than half of the national savings do not pass into the stock and bond open market. This large part of savings is used directly by the saver in his store, his farm, his plant, his household. We must distinguish, therefore, between personal savings and business savings, and further between savings made through the investment markets and savings made outside those markets.

Uses Made of Savings.—Having examined the sources of savings, we may now examine the uses made of savings. Although uses vary from country to country and from year to year, nevertheless it is possible to obtain a fair picture of the situation by studying a sample year in the United States. David Friday estimates the distribution of savings for the year 1923 as follows: ¹²

¹¹ *Journal of the American Statistical Association*, Volume 18, p. 470.

¹² *New Republic*, Volume 37, p. 304.

\$3,300,000,000	automobiles and trucks
600,000,000	highway construction
500,000,000	garages and expansion of automobile plants
600,000,000	oil development, pipe lines, refineries
4,000,000,000	building outside of automobile industries
1,000,000,000	new railroad equipment
1,250,000,000	telegraph, telephone, electric light and power, etc.
1,000,000,000	gold imports, public works, furniture, etc.

Total \$12,250,000,000 Estimated savings of the nation in 1923

The first four items in this list relate chiefly to the automobile and to its allied industries. About \$5,000,000,000 of savings were applied to the demand arising from the technical progress represented by the automobile. The next largest item is new building, and this, combined with the automobile, accounts for fully three-fourths of the new capital of the year. The major portion of this capital represented durable goods for gradual consumption and enjoyment. Both the production and the use of these goods require an extended period of time. This involves waiting, or non-expenditure of income for purposes of immediate consumption. The demand for this waiting or saving is the current demand for capital. The demand is met by the excess of production of durable goods over and above present annual consumption. These durable goods may in part be produced goods used in further production, such as machinery, but it is clear from this estimate that the main part of these durable goods are consumption goods which yield their utilities over a long period of time.

The produced goods used in further production are mostly represented in the last three items of the list. Transportation equipment, electrical equipment, public utilities, and public works are salient features of this productive capital. In comparing the totals of new productive and new consumption capital, however, one is impressed by the fact that consumption capital represents decidedly the larger use of current savings. The effect of technical progress upon the uses of capital is illustrated in impressive fashion by the automobile, electricity, and modern housing, and the firm demand for capital at the present time due thereto. It is a fair conjecture that, were it not for technical developments in these fields, the demand for capital would be quite low and the interest rate likewise at a very low point.

Share of National Income Going to Interest.—It would be interesting and valuable to know definitely what share of the total yearly income of the United States is paid out in the form of interest on capital. The problem is an exceedingly difficult one to treat statistically, and yet the estimates which have been made are approximate enough to be highly suggestive. M. C. Rorty estimates that about 16 per cent of the total of all incomes goes to interest on capital.¹³ Interest is used here in the sense of gross interest rather than of net or pure interest. Rorty also

¹³ *Some Problems in Current Economics*, pp. 29, 63, 103-106.

estimates that land rents absorb about 8 per cent of the total of all incomes. It is however uncertain just what part of this is to be regarded as interest on investment in land and what part as producers' surplus on land, or economic rent. Gross interest and gross rent combined amount, therefore, to about 24 per cent of the total national income. It would be conservative to conclude that from one-sixth to one-quarter of the annual income of the nation is disbursed as interest. Consequently, if in a given year the income of the United States were \$65,000,000,000, the share of this sum going to interest would at the least be upwards of \$11,000,000,000 and would probably be substantially above that sum. Some such amount as this is the cost to the country of the services of those who have saved and accumulated. The owners of the capital supply of the country have a standing claim to this important share of the national income. This fact is fundamental to any understanding of problems of distribution.

Share of the National Income Saved Annually.—The measurement of the annual savings of the country is a comparatively recent achievement. The stimulus to the use of statistics for this purpose is largely the result of wartime interest in thrift and saving. It is possible to estimate savings from two standpoints, namely, gross savings, and net savings. Gross savings refer to the amount of income not devoted to immediate consumption. Net savings refer to the actual addition to permanent capital. The difference between the two represents such items as the amount of savings devoted to war costs, or the amount used to replace old and worn out capital. The table given below is derived from estimates of net savings by W. I. King¹⁴ and of gross savings by David Friday.¹⁵ The statistical methods used in making these estimates may not be in all respects strictly accurate. However, the estimates are the most reliable that have been made, and although statistical method needs to be perfected, present estimates are nevertheless sufficiently close approximations to be highly significant and to serve many practical purposes.

The years for which data have been omitted are those for which statistical studies are not yet available. However, the available data are sufficient to indicate clearly that normally the nation saves about one-seventh of its total income. In 1916 the ratio rose exceptionally high, being one-fourth the national income, and in 1918 fell exceptionally low, representing a deficit or depreciation of capital of about 3 per cent of the national income. These ratios refer to net saving. As to gross savings, it is found that in 1918 the nation saved for war expenditures as much as one-third of its income. But war expenditures meant loss of permanent capital, and the stock of national wealth actually declined during the year.

It is interesting to compare the share of national income paid out as

¹⁴ See *Journal of the American Statistical Association*, Volume 18, p. 467.

¹⁵ See *Profits, Wages and Prices*, p. 91; also *New Republic*, Volume 33, p. 271, and Volume 37, p. 304.

interest to investors with the share of national income saved. The two are much the same in amount. For every dollar disbursed as an interest payment to a property owner, there is, roughly and approximately speaking, a dollar saved anew out of current income. The nation reinvests its interest income each year. It does not follow of course that each individual reinvests each dollar of interest income received, but the statement does apply to the average interest receipts and volume of savings of the nation as a whole. *New savings approximately equal interest on old savings.* In passing judgment on the justice, wisdom, or advantage of allowing so large a part of national income to be distributed as a reward for ownership, it is not without significance that an equivalent of the amount so distributed is, for the nation as a whole, turned back into productive industry.

INCOME AND SAVINGS OF THE UNITED STATES

Year	Total National Savings, in Dollars of Current Year, <i>Net</i> (millions)	Total National Savings, in Dollars of Current Year, <i>Gross</i> (millions)	Net Saving, Dollars of 1913 Value (millions)	Total National Income, Dollars of Current Year (millions)	Net Saving, Fraction of National Income
1909	\$5,001		\$5,231	\$29,259	.1709
1910	5,387		5,509	31,471	.1712
1911	4,221		4,289	30,904	.1366
1912	5,272		5,298	33,807	.1559
1913	4,879	\$6,500	4,880	35,436	.1377
1914	4,183	5,500 (a)	4,140	33,401	.1252
1915	7,542	9,000	7,381	35,920	.2100
1916	12,547	14,500	11,401	45,861	.2736
1917	9,273	18,000	7,162	54,664	.1690
1918	-1,844	22,000	-1,196	59,930	-.0308
1919		15,000		66,800	.2293 (c)
1920		11,500 (a)		74,158	.1543 (c)
1921		8,000		62,736	.1457 (c)
1922		10,000		58,500 (b)	.1652 (c)
1923		12,000		67,000 (b)	.1681 (c)

(a) See W. R. Ingalls, *Wealth and Income of the American People*, p. 203.

(b) See above, page 46.

(c) Gross saving, fraction of national income.

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CHAPTER XVI

PROBLEMS OF CAPITAL AND INTEREST

The Overhead Burden of Capital Equipment.—It is an important problem to discover how much benefit accrues from modern capital. When one contemplates the many marvels of science and machinery, the sensational increases of productive capacity due to certain leading inventions and discoveries, it is a temptation to assume that society has benefited proportionally. This assumption would however go much beyond the facts. A typical illustration of this overdone assumption runs as follows: "In the steel industry, one or two men with unloaders replace twelve to twenty men unloading by hand. In men's clothing, in various processes, machines with a single operator replace six and eight workers. In the glass industry, one type of bottle-making machine replaces fifty-four workers. In coal mining, an automatic conveyor for pier unloading with twelve men replaces one hundred and fifty men."¹ These dramatic achievements do not mean a proportional increase in our net capacity to produce goods for consumption. With each of these inventions more and more labor has to be given to the making of machinery, the construction of equipment, the preparation to make goods for final consumption. Less and less time is required to make goods for actual consumption, but more and more time is required to get ready to make goods for actual consumption. The indirect processes necessary to mine and factory, the preliminary stages of collecting materials and capital equipment, the transporting of goods farther and farther as production becomes more and more complicated, offset to a degree the dramatic increases of efficiency represented by individual machines. Machine after machine increases the productive capacity of the laborer often a hundred or a thousand fold, but the total real income of the nation advances by no such thrilling leaps and bounds. Advance there is, and increase of real income there is, but not faster than 2 per cent per capita each year.

This point is well illustrated by modern transportation. A ton of freight was transported 242 miles on the average in 1900, and 304 miles in 1920, an increase of 25 per cent. The mere fact that goods are moved farther and faster does not indicate an increase in national productive capacity. Carrying goods from place to place is not the same as making goods for consumption. What is happening is that more and more of society's energy goes into moving things from point to point, and into

¹ *American Economic Review Supplement*, Volume 14, pp. 113-114.

roundabout processes of manufacture. The net result is a moderate increase in real income, but no such sensational increase as one might suppose from viewing the demonstrations of efficiency of individual machines, inventions, and discoveries.

The enormous growth of capital and of indirect processes employed in roundabout construction has brought about an overhead burden upon industrial society, a burden that has attained great dimensions. This overhead burden may best be studied from the standpoint of accountancy. The cost accountant distinguishes between direct costs and indirect costs. Direct costs, for instance, would include direct materials used in manufacturing and direct labor used in the particular process. Indirect costs are variously termed "overhead," "constant," or "supplementary" costs. Illustrations of indirect costs would be such as the following: insurance, interest, taxes, rent, depreciation, maintenance, and supervision. It is an outstanding characteristic of such costs that they cannot be assigned to particular units of the business. They are general costs, and cannot be definitely assigned to each pair of shoes or yard of cloth manufactured. It is a further outstanding characteristic of such costs that an increase or decrease in output is not accompanied by a proportionate increase or decrease in those costs. If machines are idle, interest and depreciation continue just the same. If plant is unused, rent, insurance, and depreciation continue just the same. Hence, the overhead burden in modern capital is the mass of costs which remain more or less fixed whether the capital is used or not. This burden is especially severe during seasonal slumps in production and during the depression stages of the business cycle. The unused productive capacity must nevertheless bear the burden of the continuing overhead costs.

The overhead burden bears down least heavily upon the cost of each unit of product when production is running to full capacity. *Consequently the problem of overhead cost is mainly the problem of unused powers of production,—the problem of preventing idleness of plant.*

In summary, the two phases of overhead which chiefly concern economics are: first, mild and fairly steady increase in productive power in spite of sensational inventions and discoveries, due to the fact that more and more of the mechanical process is devoted to roundabout and preliminary stages of production; second, the cost accounting problem of averting idleness of plant, and of meeting the overhead burden of those costs which do not decline materially no matter how many laborers are cut off the pay roll or how much of the plant is closed down. Whatever pride we may take in the marvels of modern science, we must temper it by a serious concern for the offsets to these marvels, as found in the phenomena of the growing overhead burden.

Effect of a Different Distribution of Income upon Savings.—One point of bitter controversy in the business and political field is the question of the extent to which capital accumulation depends upon inequality of income. It is firmly held by many authorities that a more democratic distribution of income would choke off the supply of new capital. It is

argued that if wages are increased at the expense of the high income classes, the wage increases will not be saved but will be spent for immediate pleasures. The same objection is raised to a heavy taxation of high income classes. It is argued that if taxes rest heavily upon the man who has an income of \$10,000 or over, the taxes are paid out of what would otherwise be saved and put into the capital fund. Once the government has collected such taxes, the amount is declared to be devoted to unproductive governmental expenditure. Looking back upon the growth of wealth during the past two generations, we must admit that the gross inequality of income during that period had a profound effect upon capital accumulation. As J. M. Keynes states, "The new rich of the nineteenth century were not brought up to large expenditures, and preferred the power which investment gave them to the pleasures of immediate consumption. In fact, it was precisely the inequality of the distribution of wealth which made possible those vast accumulations of fixed wealth and of capital improvements which distinguish that age from all others. The immense accumulations of fixed capital which, to the great benefit of mankind, were built up during the half century before the war, could never have come about in a society where wealth was divided equitably."²

Nevertheless we should be altogether blind to the meaning of historical change, were we to accept what has been true during one stage of our history as the criterion of what must be true in later stages. There is ample evidence that the wage-earning and middle-class groups are capable of developing habits of thrift. The growth of insurance funds, savings bank deposits, and building and loan association accounts gives evidence of thrift. The formation of coöperative labor banks by leading unions is evidence pointing in the same direction. The degree of success reached by many companies in promoting stock ownership by their own employees carries a similar lesson. It is also significant that during those post-war years when unemployment has been good and the share of national income going to wages high, the supply of savings has been kept up. It is this statistical observation which leads Friday to conclude that, "The old notion that high wages and the distribution of a large portion of the national income to the laborer militates against capital accumulation has been disproved during the last few years."³

The whole discussion centers around the education of the masses to habits of saving, the institutionalizing of thrift. Provided only that such a process is moderate and gradual, there appears to be no menace to capital accumulation in a more democratic distribution of wealth. At any rate, the science of economics must guard itself against either defending the present distribution of income merely because of the history of methods of capital accumulation; or supporting a more equitable distribution at a too rapid pace merely because of sympathy for the laborer. Most certainly, the science of economics lends no support to the claim

² *The Economic Consequences of the Peace*, pp. 18-19.

³ David Friday, *The New Republic*, February 13, 1924, p. 305.

often made in well-to-do circles that it is unsafe to raise wages because by so doing we will inevitably jeopardize capital accumulation.

A closely related point of bitter controversy is whether labor tends to benefit proportionately from the growth of capital. It is common practice to lecture laborers upon their sacred duty to do all in their power to promote the increase of productive capital. They are taught that there is no hope of material increase in wages by making the wage share of present income larger, at the expense of profits or other shares. They are informed, by an array of statistics of income, that their one hope of increasing wages is to produce more. If national production increases, they are assured that automatically wages will correspondingly increase. The laborer, however, has grounds for not being fully convinced on all parts of this instruction. It is true, material wage increases are *possible* only if production is increased. But there is no guarantee that this possibility will be realized. Real wages decreased per worker from 1896 to 1914, although per capita production increased 21 per cent.⁴ During a period of nearly two decades, capital increased, productive power increased, output increased, and the possibility of higher wages increased. But as a matter of cold fact, the purchasing power of the laborer's income actually declined. From 1914 to 1924 real wages increased more rapidly than production, but not enough to make up for the lack of increase in the previous two decades. The lesson seems to be that there is no assurance that the laborer will automatically receive the full benefit of increases in productive capacity. Unless the bargaining power of labor is strong, or the scarcity of supply of labor is marked, there is no guarantee that by the very nature of things labor will gain a full share of the greater national income due to increased production.

As to the effect of taxation upon capital accumulation, our main principle is that taxation which obstructs the growth of productive capital, by that much diminishes the productive capacity of all the people and lowers the standard of living. Taxes are destructive when they hinder the growth of production. With this principle in the abstract, agreement would seem to be easy. But when we attempt to determine to what concrete degree taxation may encroach upon a given individual income, we find much confusion and disagreement. The rich man goes to one extreme in claiming that high taxation of his income will destroy the fund which he would otherwise save, and will therefore prevent the growth of capital. The laborer goes to another extreme in claiming that high taxation of the rich man will simply reduce his extravagances, and have no effect upon his fund of savings. How to make taxation productive is a most important problem. At this point we may let the matter rest by stating the problem as a problem. The complicated issues which are involved in a solution of the problem belong in the chapters on taxation.

⁴ See George Soule, *American Economic Review Supplement*, Volume 13, pp. 132 ff.

What is the "Right" Rate for Banks and the Money Market?—

There is a very frequent dispute in banking and business circles as to whether the bank rate of interest is high enough or low enough. Bankers are familiar with the fact that credit and capital are two different things, though closely related in their movements. Credit is purchasing power over capital, and business men pay interest on credit because it gives them command over capital. What business wants is the use of capital, but to get that, business must first obtain bank credit or money wherewith to purchase capital. The dispute centers in the question whether the interest on money and credit reflects truly the demand for use of capital. If credit is too costly, the business man cannot afford to engage in production. He insists therefore upon the "right" rate of interest from his banker. All this is from the viewpoint of the borrower. But a like consideration is in the mind of the lender. The lender offers purchasing power over goods to some would-be business man, but insists that the interest received shall be "fair" and "right." Both borrower and lender know that interest rates are supposed to bring supply and demand of capital into balance, but it is not so easy to agree upon the exact point where balance is reached. The confusion is the greater because the bank rate or money market rate is only *one* determinant of the real capital rate or saving rate. What test is there to show when the bank rate reflects the true rate of saving justified by fundamental conditions of demand and supply?

We may eliminate banking reserves as an adequate test. The ratio of loans and discounts to reserves might be an index of sound banking conditions under conditions of stable gold reserves, but war and post-war gold supply has been distributed on such an abnormal and shifting basis that the reserve ratio furnishes no adequate guide to the right money rates.

Two positive tests may be used: the volume of production and the movement of the price level. Interest rates are right when they tend to sustain productive output near to capacity. The first test is therefore a test of effects upon production of goods for the use of the nation. Interest rates are too high when they deter business men from securing the use of capital for normal productive purposes. Interest rates are too low when they permit speculative expansion without any corresponding expansion of tangible production. When the index of credit expansion rises beyond the index of volume of production, it is a warning that interest rates are too low.

The second test, the price level, is closely related to the test just mentioned. When bank credit expands more rapidly than production, the resulting tendency is inflation, measured by the rise of the price level. We may say, therefore, that the "right" interest rate is that which avoids either marked inflation or deflation. It is the rate which tends to stabilize prices within proper limits and to prevent extreme price fluctuations. A stable price level is itself an indication that the volume of money and credit is properly adjusted to the needs of pro-

duction. The proper interest rate is one which effects that adjustment.⁵

Coördinating Capital with the General Economic Process.—In spite of the broad influence of supply and demand over capital and interest, it is nevertheless true that these forces do not establish any equilibrium or balance between capital and industry in general. There is a fundamental problem of coördination of capital accumulation with the actual needs of the whole economic life. One phase of this problem is the frequent occurrence of over-saving and under-consumption. The supply of new capital fluctuates with the business cycle. During certain stages of prosperity, the construction industries are speeded up to capacity, with a sharp acceleration in the output of industrial equipment, new building and plant extension, and other capital equipment. The over-supply of fixed capital is one of the stresses which bring on the crisis stage of the business cycle. Then during depression the output of new industrial equipment and of new construction generally is at low ebb. This unevenness in rate of growth of capital supply may be greatly moderated by carefully formulated plans for stabilizing construction, but such plans are slow in winning adoption by private business concerns. With the gradual improvement of institutional practice in this regard, we may look forward to an elimination of the worst features of temporary over-saving and under-consumption followed by temporary under-saving and over-consumption.

The control of the official discount rate by the Federal Reserve banks and the influence over commercial interest rates by the banks themselves are another important means of bringing about better coördination of capital growth and industrial need. The interest rate is an effective regulator of the up and down movements of demand for new capital. A raising of rates at the proper time can control the over-production of fixed capital, and an easing of rates at the proper time can stimulate production. Left to themselves, the crude forces of supply and demand bring no automatic adjustment or balance. They are forces which require judicious guidance and direction. The regulation of the interest rate is a most important means of such guidance.

Over-saving and over-investment are also problems related to the export of capital and to foreign investment. Before the World War, England was investing about half her annual savings abroad. Her surplus of savings available for capital, over and above home demand, was very great. Suppose these surplus savings had been thrown on the home investment markets. The over-supply must, in that case, have had the effect of severely depressing the interest rates. What happened was that the investment bankers, seeing that to allow savings to increase the home supply of capital would disastrously affect the receivers of income from stocks and bonds, managed to sustain the interest rate by distributing English savings all over the world. The United States,

⁵ See W. T. Foster and W. Catchings, *Money*, Chapter 8; Gustav Cassel, *A Theory of Social Economy*, pp. 473-485; and *Federal Reserve Bulletin*, January, 1923, p. 1; February, 1924, p. 78; March, 1920, p. 242.

since the war, appears to face the necessity of exporting capital if the interest rate is to be sustained. As nations advance far in modern production technology, they develop a very high capacity to save. This saving capacity becomes so high that it threatens to give a heavy over-supply of capital. But this would be a catastrophe to all people depending for income upon ownership of securities. The yield on their securities would drop disastrously under the effect of over-supply. The export of capital will stall off the day of falling interest income for a time. Eventually, however, such a decline appears inevitable.

We say it appears inevitable, but there is one possible escape from this seeming inevitability, namely, by way of a change in the distribution of wealth and income. The home demand for capital may be sustained indefinitely if the purchasing power of the masses is increased. The laboring classes certainly have not reached the zenith of a standard of living. The needs of new capital to provide better working class homes are obvious, but these needs will not become effective demand for building capital until the incomes of the workers are sufficient to pay for better homes. This is illustrative of a broad class of possible uses of capital, all of which wait upon the improvement of working class incomes. A more democratic sharing of national income is one possible step in that direction; an increase in the total national income to be shared is another step. Coördination of mass purchasing power with the rate of capital accumulation is therefore a leading feature of the problem of over-saving and over-investment.

Not only is over-development of total capital supply a problem, but also over-development of certain industries and under-development of others is an equally important problem. At the same time that the railroads have been suffering from a shortage of capital equipment, the bituminous coal mines have had an enormous excess. The United States Coal Commission in its report on the bituminous coal mines in 1923, declared: "The capacity is sufficient to produce at least 25 per cent more than the highest rate attained in periods of peak demand, and if demand were spread evenly over the year, the overdevelopment would be even more pronounced." Competent engineers have declared that the clothing factories of the country have a producing capacity of 45 per cent in excess of what is necessary, and the boot and shoe factories nearly 100 per cent. In building of homes for workingmen, the nation suffers a severe shortage, but in mining and metallurgical industries or in automobile manufacture, the nation is enormously oversupplied with capital equipment. Capital shortage in some industries is accompanied by capital excess in others.⁶ This maladjustment is partly the result of seasonal and cyclical fluctuations, but for the most part is more cause than result. The development of shortage in one branch of industry and excess in another leads to an unbalancing of production, with consequent crisis and depression. The stabilization of capital equipment in

⁶ See Federated American Engineering Societies, *Waste in Industry*, p. 17; and W. R. Ingalls, *Wealth and Income of the American People*, pp. 127-133.

the various lines of production in such a manner as to correspond to the progressing needs of the country is a most important problem of the future. The automatic and unguided laws of supply and demand have proved inadequate to the task of maintaining a balance of capital equipment. Suggested methods suited for such guidance are presented in the chapter dealing with business cycles.

Conclusion.—The central point of view in our analysis of capital and interest has been the relationship between money, credit, price, value, and property rights on the one hand; and goods, production, progress, and material welfare on the other hand. We have traced the connection between capital as physical goods productive of further goods for human use, and capital as property rights and values productive of dollars of profit. It should be clear that capital is not money and credit, but that money and credit must be rightly organized before capital can function rightly. Interest is a price paid for use of capital, and the fluctuations of this price influence, and are influenced by, the fluctuations of all other prices. The pecuniary volume of capital values may rise and fall without corresponding changes in the volume of capital goods. The function of physical capital is to produce goods, but the function of pecuniary capital is to produce money profits. Interest rates are not superficial and inert forms of income, but are forces which literally move or check the whole process of production and consumption. They accelerate or retard both the making of goods and the making of money. They are not mere after-effects, but are themselves dynamic, regulating, controlling forces of fundamental movements. By studying capital from the standpoint of values, property rights, and money control, and interest from the standpoint of price movements, maladjustments, and coördinations, we succeed in achieving a broad view of the governing influences of capital and interest over the central currents of economic life.

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CHAPTER XVII

PRINCIPLES OF LAND RETURNS

Fundamental Definitions and Concepts.—In economic terminology, land includes all natural resources. Minerals, forests, water, farm soil, urban sites, and air are parts of the supply of natural resources. The land includes not only the surface of the soil, but all resources that are beneath the surface, and the air and space that are above the surface. The industries which derive the basic materials of production from the soil by farming, mining, lumbering, and the like are called the *extractive industries*. Their function is to extract from the land the resources necessary for economic activity. The industries which promote and guide the ownership of the soil by specializing in the buying and selling of land are the real estate industries. Their function is primarily the organization of a pecuniary market for the land and the furtherance of improvements on the land. The real estate and the extractive industries develop the resources of the land and adjust the uses of the land to the demand for those uses.

Land viewed in this broad sense exhibits certain likenesses to capital and certain unlikenesses. One likeness is that both land and capital are used for the production of further wealth. Both compose the productive equipment of the community. Both are means and instruments of further production. Judged by the productive uses to which land and capital are put, both serve the primary end of contributing to the creation of further wealth. A second likeness is that both land and capital are bought and sold in the investment markets. A person investing in the securities of a corporation is purchasing indiscriminately land and buildings. Savings may be used to buy a farm or a building site as well as to buy raw materials or machinery. Mortgage bonds on land absorb a large portion of the savings of the nation. Saving and investment represent productive wealth, and if these may be applied either to land or to capital, then land and capital are alike in that respect.

But one distinct unlikeness appears between land and capital. Capital has been defined as a *produced good* used in further production of wealth. Buildings, machinery, equipment, all have been produced by human effort. But land is not produced in any such fashion. Land is provided by nature. It is there, and cannot be produced by human effort. The land is given to start with, and man must make such use of it as he can. *Land is non-producible*. In applying this comparison, distinction must be made between land in its original physical form, and the improvements on land. The improvements resemble capital, in that

the improvements are produced by human effort. Only land in its original physical form is non-producible. Producible improvements differ from non-producible qualities of the soil. The original qualities of the soil alone belong in the category of non-producible factors.

Much economic discussion has centered around the question: Should land be considered as a distinct and separate factor in production, radically different from capital; or should it be considered simply as one form of capital, a special and peculiar form, but capital nevertheless? It seems to the present writer that so far as logical consistency is concerned, it makes little difference which answer is given to this question. So long as the likenesses and unlikenesses between land and capital are understood, and borne clearly in mind, the logic of economic analysis does not suffer. Whether we identify land as one form of capital or isolate it as a wholly independent species, the odds are negligible so far as the logic of the case is concerned.

There is, however, one practical advantage in merging land with capital in our thinking. That advantage arises from the peculiarities of the money economy. In the money economy, pecuniary investment is the primary thing. From this pecuniary standpoint, the investor puts his money into land or into buildings, and the process is the same so far as he is concerned. His savings are in a money form, and with this money, he can buy an interest income by investing either in land or corporate property. To the investor, in the modern money economy, it seems illogical to exclude land from the category of capital. Likewise, to the business man, the distinction seems unnecessary. The business man ties up money in land, buildings, and machinery, and figures them one and all as a common expense in the business. The fact that land as such is non-producible is a fine point of logic which has little significance for him. The great point in his calculation is that if he needs land, he must purchase it at a price and figure on a more or less permanent investment, and that if he needs capital, he must do the same. Both cost money, both tie up capital, both are an investment, both absorb savings, both are an overhead expense to the business. In the money economy, in pecuniary transactions, in the business viewpoint, land is simply one form and illustration of capital.

Where this inclusion is assumed, the fact must still be borne in mind that land is non-producible capital. This fact has large social significance. If a greater demand for land arises, the demand cannot be met by adding to the physical supply of land. The physical supply is fixed. New supply is non-producible. Increased demand must therefore lead to an increased value of land. The owners of land will see the value of their holdings mount upward, without effort or sacrifice on their part. As idle landlords, they will profit from the appreciation in value, without having rendered any service or performed any material labor. Such gain has commonly been termed, the "unearned increment" of land. Many have advocated that the unearned increment be wrested from landlords by taxation, and applied to social ends. Further discussion of the

unearned increment is reserved for later paragraphs, but it is essential to state the problem at this point. The social significance of the non-producible quality of land must be held clearly in mind.

Having noted the salient features of a definition of land, we may proceed to a definition of rent.

The principles of land returns have been much confused in economic theory by the meanings read into the term, "economic rent." More than a century ago, a successful stockbroker of London, David Ricardo, after having made a fortune on the Stock Exchange, became interested in economic science, and was especially concerned with landlordism and the food problem in England. Possessed of great analytical powers of mind, he refined the principles of land returns beyond any point previously attained by economists. He defined rent as "that portion of the produce of the earth which is paid to the landlord for the use of the original and indestructible powers of the soil." This definition, and the laws of rent built up around it, bear the scars of many brilliant battles of logic among later economists. The assumption that the powers of the soil are original, or non-produced by man, in the economic sense of produced, has been assailed. The assumption that the powers of the soil are indestructible has been attacked. And the assumption that rent is a species of income wholly different from interest on capital has been vigorously denied. Meanwhile the business use of the word rent has come to mean one thing and the economic use of the word quite another thing. Ricardian rent theory proved to be a masterful attack upon early nineteenth century landlordism and was instrumental in the repeal of the corn laws and the introduction of free trade in English commercial policy. And many of its tenets are still indispensable corner stones of economic science.

The traditional use of terms among economists has resulted in a differentiation between *economic* rent of land and *commercial* rent. Economic rent refers to the net returns yielded by a given piece of land. The phrase refers to income, net gain, profit on the land. This use of terms contrasts with the popular use. In the popular use, rent is an expense, or a return on invested capital, depending on the point of view. But in the strict economic sense, rent is earning capacity. It is the amount of net gain which the land is capable of yielding.

Commercial rent corresponds more nearly with the popular use of terms. Such rent is the price paid for the temporary use of durable capital, whether in the form of land, buildings, machinery, or other property and equipment. In the commercial world, a person may rent an automobile, a machine, a house, a factory, a farm, or a building site. His rent is the price which he pays the owner of the materials for the right to use them over a given period of time. At the end of that period their use is turned back to the owner. The reason why the user is willing to pay the rent is the fact that he expects the capital to yield him an income. The amount of rent which he is willing to pay is in proportion to the amount of income which he expects the capital to yield him. The

size of the rent corresponds with the size of the prospective income from use of the capital. The rent of the capital tends therefore to equal the net income of the capital. Hence, in defining commercial rent, we may say that it is the price paid for the use of capital and that it corresponds with the net income yielded by the use of the capital.

If the land owner farms his own soil, he makes a net return, which is economic rent. His profit from cultivating the land which he owns is his economic rent. It is obvious, therefore, that economic rent accrues even though no tenant is involved. The land is not hired, the farm is tilled by the owner himself, yet economic rent accrues, since by definition of the term, economic rent is net gain or income. The situation is different when the land is leased to a tenant, and tilled by the tenant. The tenant pays to the land owner a commercial rent. But he contracts to do so, only because he expects the economic rent from the land to be high enough to cover the landlord's claim. If economic rent is correctly gauged by the landlord, he will demand that commercial rent be equal to economic rent. However, rarely is economic rent gauged so accurately as to be exactly equal to commercial rent. A discrepancy between the two will yield either gain or loss, as the case may be, to the tenant.

In addition to this possible source of income, the tenant has three other sources; namely, wages for his labor, interest on his invested capital, and profit for his services as entrepreneur. These shares are not due to land as such. They are due to labor, capital and risk taking. The only return due to the land alone is the pure economic rent. In the long run, this will tend to be absorbed altogether by the landlord, although, over short periods, it may be either more or less than the commercial rent.

When hard times strike the farming areas, the reason is not that economic rent is too high, but that it is too low. Agricultural depression is due to low economic rent, i.e., low net returns. But where tenant farmers are involved, low economic rent is a relative term. It is relative to the overhead burden of commercial rent which the tenants must pay, before they have any share of economic rent for themselves. Tenant prosperity rests upon the relationship between economic rent and commercial rent. When commercial rent is high in proportion to economic rent, the commercial share eats up virtually all of the economic rent, leaving nothing as a net gain for the tenant. The actual cultivators of the soil enjoy prosperity in proportion as their economic rent is high and their commercial rent is low.

Economic rent is often designated as ground rent, in contrast to the rent of buildings or of other producible capital. If a person rents a residence, his commercial rent represents both building rent and ground rent. Rent of land is restricted to ground rent.

Rent bears certain likenesses to interest and certain unlikenesses. When a person pays rent, he borrows the capital but lets some one else own it. Renting does not give title of ownership to the tenant. Ownership still vests in the party who leases out the property. But when a

person pays interest, he borrows money, but the goods which he buys with the money belong to him. If he borrows money and buys property, he owns the property. If he borrows property as such, he has no claims of ownership over it. There is clearly a difference in ownership as between hiring the property at a rent, and hiring at interest the money wherewith to buy the property.

There is also a sharp difference in the method of calculating the two forms of payment. If a person borrows \$100,000 from a bank, he pays, we will assume, interest at 6 per cent. With the money he may *buy* a factory or a piece of land. If, however, he rents a factory or piece of land valued at \$100,000, he pays, we will assume, \$6,000 a year as a *rental*. Interest is figured as a per cent, rent is figured as a lump sum per month, or year, or other period of time. In either case the price paid is for the use of the capital as a means of obtaining income. Hence interest and rent are two different methods of paying for the same sort of thing. In both cases the amount of the payment depends directly upon the prospect of income from the use of the capital.

The Valuation of Land.—The value of land is derived from the net income which it yields. The price measure of land value is arrived at by capitalizing the net income of the land at a certain rate per cent. Thus, if an acre of farm land yields crops which after all expenses are met leave a net income of six dollars, the value of the land, assuming an interest rate of 6 per cent, is one hundred dollars. The value of the land does not determine its net income; the net income determines its value. This process of ascertaining land values is fundamentally no different from the process of ascertaining all capital values. In the chapter dealing with capital and interest, it was pointed out that the value of any capital good is primarily a capitalization of its earning power or net income.

In later sections, discussion will be given to the factors which, from the side both of supply and of demand, influence net income on land or other resources. For the present, it is essential to state the process of capitalizing land income into land value. This process is always closely connected with the rate of interest. If the net income on an acre of land is six dollars, and the rate of capitalization is 5 per cent, the value of the land is one hundred and twenty dollars. If the net income is six dollars, and the rate of capitalization is 7 per cent, the value of the land is eighty-five dollars. In other words, if the net income remains the same, a fall in the rate of interest will cause the value of the land to increase; and on the other hand, a rise in the rate of interest will cause the value of the land to decrease. *Hence, we may state the general law that the value of the land varies directly with the net income and inversely with the rate of interest used as a basis of capitalization.*

The following table shows the ratio between land value and rent for varied groups of farms. The outstanding feature of the data is the wide difference which appears in ratios of rents to values in different localities.

RELATIONSHIP OF LAND RENTS TO VALUES *

Group Number	Number of Counties in Group	Gross Rent per Acre	Average Value of Buildings per Acre on One-Year Tenant Farms	Average Repair and Depreciation per Acre on Buildings	Average Tax per Acre	Net Rent per Acre	Value per Acre	Ratio of Net Rent to Land Value
								%
7	36	\$7.46	\$24.40	\$0.73	\$1.34	\$5.39	\$160	3.4
9	10	6.81	32.80	1.18	1.05	4.58	164	2.8
10	111	7.42	21.40	.64	1.31	5.47	225	2.4
14	24	4.13	18.20	.55	.76	2.82	128	2.2
25	4	5.12	13.20	.40	1.00	3.72	143	2.6
26	6	8.78	14.60	.44	1.35	6.99	150	4.7
37	31	9.79	14.40	.95	2.50	6.34	98	6.5
42	10	2.00	8.20	.54	.32	1.14	30	3.8
46	2	5.65	14.80	.88	.76	4.01	66	6.1

* United States Department of Agriculture, Department Bulletin No. 1224, *Relation of Land Income to Land Value*, C. R. Chambers, p. 27.

The ratio of net rent to land value varies all the way from 2.2 per cent to 6.5 per cent. The ratio in this case is equivalent to the rate of capitalization. Land as used in this table includes both land and improvements. Rent is used in the commercial sense, as the cash rent paid by the farm tenant to the farm owner. Usually, the rate of returns represented by the above figures was less than the rate of returns on capital investments in general. The average return on land value according to this data was about 3.8 per cent. Returns on other investments of similar grades in industry were at least 1 to 2 per cent higher.

Some explanation is required of the fact that rates of return vary so widely in farm lands and of the fact that farm investment shows a lower return than other investment during this period. The explanation might be sought in changing taxes and changing costs of depreciation and repair. To some extent, these factors are important, but they are overshadowed by a much more important factor, namely, *changing expectations of future income*. Capitalized value rests not merely upon actual present income, but upon anticipated future income. In times of rising prices and prosperous farming, the rosy outlook for future farm gains leads to the valuation of farm lands on the basis of these large future expectations. In the course of time, the actual yields may be more or less than the expected, but at any given period, the valuations are closely governed by the expectations, whether those are right or wrong. These variations in expected farm incomes largely account for the variations in valuation and rental ratios. Prospective farm earnings govern the situation.

The Demand for the Uses of Land.—There is no demand for land as such. Demand exists only for the uses to which land may be put in the economic process. Thus, urban land is demanded for its use as building sites. Farm land is demanded for its use in raising crops. The services and products of the land are the center of attention in analysis of land demand.

There is no single hard and fast classification of the uses of land, but the following classification suggests the types of most importance:

Building sites	factories, stores, residences
Agriculture	pasturage, staple crops, truck farming
Transportation	railroad lines, highways, aeroplanes
Communication	telephone, telegraph, radio
Recreation	parks, streams, playgrounds
Forestry	lumbering
Mining	extraction of raw materials for production
Water	navigation, pleasure, drink, power

These uses of land undergo wide changes from year to year. Much of the land is of a kind which may be devoted to several different uses, and as customs change, as population grows, as methods of production improve, new uses displace the old. What was formerly a cow-path becomes a Fifth Avenue. What was formerly a desert becomes an irrigated wheat farm. What was formerly air and space becomes a skyscraper or broadcasting station. What was formerly useless subsoil becomes a subway route. What was formerly a rocky hill becomes a recreational park. What was formerly a corn farm becomes a truck farm to feed a new grown city. The constant shifting of the uses of land means, therefore, that the demand factor is not permanent and uniform, but progressive and dynamic. To analyze demand it is necessary to analyze something that is on the move.

The Supply of the Uses of Land.—The supply of land has to be viewed from two standpoints, physical supply and economic supply. The physical supply is fixed and unchangeable. The geographical structure of the earth, over current periods of time, remains constant. It is true that over long periods of time geological changes occur in the earth's surface, but for all practical purposes of economic calculation, these geological changes may be ignored. The area of the land is constant, the mineral wealth of the earth is fixed, the water surface is virtually the same from year to year.¹

But supply of land must be considered from the economic standpoint, and from this standpoint the essential question becomes: What is the supply of the *economic uses* of land? Economic supply is constantly changing. The supply of wheat or corn land varies greatly during relatively short periods. Acreage depends upon many factors. The rising

¹ These general propositions require some qualifications. Exhaustion of coal or oil deposits alters physical supply. Forest denudation reduces physical supply. Even agricultural land may be altered in physical supply by unusual geological changes.

or falling price of wheat, the irrigation of semi-arid soil, the drainage of swamp lands, the development of new wheat lands in Australia or Argentina,—these and many other factors cause fluctuations in the supply of wheat acreage planted in the United States. The supply of mineral resources, from the economic standpoint, is not the potential physical resources of the earth, but the mined resources, and this economic supply depends upon such factors as new technical methods of production, prices offered for the product, policies of conservation or wastage, development of new industries, costs of production, and other similar forces. Land supply for many uses is merely location. Transportation, since it creates accessibility of one location to another, determines the economic supply of land. The supply of food lands would be contracted enormously if transportation did not make possible the growth of food thousands of miles distant from the point of consumption. “Bettering transportation is more land.”² The supply of building sites in cities is affected by building higher structures and by building underground. Building space is limited horizontally, but not vertically. The supply of urban sites is therefore a supply of height as well as breadth. The economic supply of breadth of building space is, moreover, greatly changeable, since every extension of suburban electric lines, busses, and automobiles brings old land into new uses.

Economic geography and economic geology deal with the physical characteristics of land supply. These studies are of interest to the economist, but only in so far as they aid in showing how the physical supply influences the economic uses of the land. The center of attention to the economist is the economic uses, and physical supply is merely one factor bearing upon the economic supply.

The Differential Aspect of Land.—Differences in the usefulness of land have their most important causes in differences of quality and differences of location. All forms of capital show some differences in grades, but land shows these differences to a degree which, in comparison with non-land forms of capital, is extreme.

Differences in grades are conspicuous in farm lands. Soils poor in fertility yield barely enough to cover expenses of cultivation, whereas soils rich in fertility yield liberal returns over and above all expenses. In between are all grades and degrees of fertility. Those soils which, though still used for an economic purpose, nevertheless yield no net returns are marginal lands. Marginal acres may be defined as those incapable of yielding returns in excess of the expenses of production. Below these acres in fertility are many abandoned farm lands which could grow some products but not enough to cover expenses. These sub-marginal farms would rise to the marginal position and actually be tilled only in case the price of farm products rose to a point which would make the income on their scanty yield cover the expenses of production. Lowest of all are desert and other lands which are incapable of any use

² H. J. Davenport, *The Economics of Enterprise*, p. 170.

whatsoever in the yield of crops. Sub-marginal lands are part of the physical land supply, but not part of the economic land supply.

Diverse grades of land are also found in the mining industries. Some ore beds are so poor in quality that it would cost more to mine them than the product would be worth. Other ore beds are of such quality that the costs to mine them are just barely covered by the value of the product. These are the marginal mines, because they are incapable of yielding returns in excess of the expenses of production. Above the marginal mines are ascending grades of ore beds which yield varying degrees of returns in excess of the expenses of production.

Differences in location affect land values much more than would be the case in most other forms of capital. Land is more immobile than other forms of capital. Its location is fixed and unchangeable. Machinery can be moved from place to place. Factory buildings can be erected where most needed. But acres of land stay put. City lots cannot be moved around. Since land cannot be moved, the advantages of superior locations are more important than advantages of location would be in the case of mobile capital goods. The greatest differences in location advantage appear in urban building sites. An acre of land in the Wall Street section of New York City sells at a value several thousand times as great as the value of an acre of the best Iowa farm land. A few feet difference in locations of urban sites may make a wide difference in values. Cleveland estimates indicate that a lot located at the corner of two equally good streets is worth 72 per cent more than an inside lot on either street. The organization of the average city gives rise to certain typical location advantages. The center of the city is usually the point where the leading retail stores, hotels and banks concentrate. The highest land values are found in these concentration points. Radiating from these centers are railroad terminals, wholesale districts, factory sites. Lower land values usually prevail in these outer sections. Residential sections have scales of values depending upon nearness to good streets, to retail stores, to pleasant surroundings. The outer rim of suburban homes derive their values largely from their convenience in location for commuters. At still greater distances from city centers come truck farms, wheat lands, and grazing lands.

The value of each grade of location is based upon a capitalization of the net returns that can be earned by the most profitable use of the land. High net returns can be earned by city retail stores because they are placed where the crowds go surging by. Such sites enable stores to expose their wares to the maximum number of customers. Lesser returns per square foot of land space usually can be earned in wholesale sections. The returns decline gradually for other types of situation. As net returns rise and fall, site values rise and fall accordingly. Values, net returns, rents, thus bear a close relation to each other, and reflect the differences in location advantages of the various sites of land.

Agricultural lands combine the differences of fertility and of location.

Highly fertile soil located close to a city market and devoted to truck farming yields high returns, and its value per acre is correspondingly high. Nearness to the railroad affects materially the values of farm lands in the wheat, corn, cotton and live-stock regions. Accessibility, convenience, and cheapness of transportation on the side of location are just as important in valuing farm lands as are quality and richness of the soil on the side of fertility.

The Margin of Substitution.—The same piece of land may be used for various purposes, and consequently there are forces regulating the amount of land which shall be devoted to each kind of use. The principle of substitution explains this selective process. We may define this principle as the tendency to substitute one use for another whenever such a change is necessary to put the land to that use where its products and services are worth the most.

A few miles out of Chicago there is a region of truck farms. Some are profitable, some not so profitable. The less profitable farms are on the margin of substitution. If their yield per acre were any less, it would pay to change from truck to wheat farming. Let us assume that wheat will yield a net return of eight dollars per acre. As soon as truck land yields any less than that amount, it will be shifted to wheat growing. The marginal acre of truck land is the acre which earns just barely enough to keep the land from being shifted to wheat growing. But let us assume further that an acre of land will yield a net return of four dollars for grazing purposes. The same acre yields slightly over four dollars for wheat growing. This is the marginal acre of wheat land, or the acre which earns just barely enough to keep the land from being shifted to grazing. Finally, let us assume that the poorer grades of grazing lands earn just enough per acre to cover the bare expenses of production. There is no net income. Consequently there is no rent. This is the marginal acre of grazing land, or the acre which earns just barely enough to keep the land from lying idle.

But many better grade truck farms earn high returns, and are far above the margin of substitution. If an acre of truck land earns twenty dollars, and the same acre used for wheat growing would yield only eight dollars, the truck land enjoys a marked differential of surplus returns. If in a different location an acre of wheat land yields eight dollars, and the same acre used for grazing would yield only four dollars, the wheat land enjoys a marked differential of surplus returns. If in another location an acre of grazing land yields four dollars, its yield is that much above the no-rent marginal acre of grazing land, and consequently the grazing land shows a differential of surplus returns. The marginal acre of land for each use is above the margin for some less gainful use to which it might be applied. Above the marginal acre of land for each use are acres which yield surplus gains. What is marginal at a given use is marginal simply with respect to the next lower use. What is surplus returns at a lower use is merely marginal for the next grade higher use. Within each particular kind of use, there are many

unequal rates of returns, some at the margin for that use, others at varying scales above the margin. Hence, to study the process of choosing the best uses of land, we proceed from the fact of unequal grades of fertility and location to the fact of unequal returns, and apply the principle of substitution by showing the marginal and differential gains which are purely relative to next lower and higher grades of uses.

The same explanation applies to urban and other kinds of land. Some retail shops earn more per front foot of space than others. As the shops grow poorer they still yield more per front foot than the land is worth for residence purposes. Finally, there come the marginal shops, which yield barely enough to keep the land from being shifted to residential uses. When shops earn less per front foot than the land is worth for homes, the substitution of uses will occur. But the value of residential sites will in turn show wide variations. At the outskirts of the city will be found land which earns just barely enough as building space to keep it from being turned to truck farming. Each kind of use has a marginal fringe, with respect to the next lower use to which the land may be put. Each kind of use has many plots of land which yield more than the marginal fringe, but their surplus gains are still not high enough to take other land away from yet higher uses to which it may be applied. Each use of land is sandwiched between higher and lower uses, with many degrees of differential surplus gains on individual plots *within* these limits.

It is at the margin of substitution that the changes in uses of land are taking place which profoundly affect economic life. When factories or shops drive out homes, when truck lands drive out wheat farms, when pasturage drives out tillage of the soil, when congested building sites drive out gardens, changes take place of the utmost consequence to economic and social life.

Since these changes are of such fundamental importance, it is imperative to have in mind the principle of substitution which regulates the amount of land that will be put to each particular use. This principle may be summarized in the following manner: From the standpoint of any single use of land, the size of returns may be classified as either marginal, super-marginal, or sub-marginal. For purposes of illustration, we may take the use of wheat land. Returns are marginal when they are just barely sufficient to keep the land from being changed to grazing or to some other use. Returns are super-marginal when they consist not merely of the marginal earnings sufficient to keep wheat land from being changed to grazing, but in addition consist of a surplus or differential return due to superior fertility or superior location for wheat growing purposes. Returns are sub-marginal on wheat land when the land could be used more profitably for other products. Consequently, when returns on wheat land are marginal, they are just enough to avert the substitution of grazing for wheat growing. When returns on wheat land are super-marginal, they are considerably more than enough to avert the substitution. When returns on wheat land are sub-marginal, they are

not enough to avert the substitution. It should further be observed that the super-marginal wheat land tends to reach a point where it coincides with marginal truck lands. When the marginal acre of truck lands yields just barely enough to keep the land from being changed to wheat farming, the given piece of truck land is at its margin of substitution. Thus, the marginal acre of the more profitable use of land tends to reach the super-marginal acre of the next less profitable use of land. Where the respective layers of uses meet is the margin of substitution. By combining our analysis of the differential aspect of land returns with the principle of substitution, we arrive at an explanation of the forces which constantly tend to place land in that use where it will yield the largest net returns.

The Principle of Diminishing Returns.—The principle of diminishing returns is not limited to land, although it was first worked out as an analysis of land returns. The principle applies to all forms of capitalistic production, and in applying it to land we are simply dealing with the special form of the principle which throws most light upon land production. The general principle may be stated as follows: As the use of any factor in production is increased, there comes a point where output does not increase in proportion to the increased use of that factor. As applied to land in particular, this principle may be stated as follows: As the use of labor or capital is increased on a given piece of land, there comes a point where the output from the land does not increase in proportion to the increased use of labor or capital. The point of diminishing returns is the point beyond which returns grow less and less in proportion to additions of labor and capital.

The principle may be illustrated by a study of the effect of increasing applications of fertilizer upon farm land. The following data are the result of experiments in cotton growing.³

Cost of Fertilizer	Yield of Cotton per Acre	Yield Due to Additional Application
Under \$3.00	200 pounds	.. pounds
\$3.00 to \$5.00	221 pounds	21 pounds
\$5.00 to \$7.00	272 pounds	51 pounds
Over \$7.00	276 pounds	4 pounds

The returns increased in proportion to added units of fertilizer capital until more than \$7.00 worth of capital per acre was added. Beyond that point, production still increased, but not in proportion to the added outlay of capital. Before the point of diminishing returns was reached, an added \$2.00 of capital increased the yield 51 pounds. After the point of diminishing returns was reached, an added \$2.00 of capital increased the yield only 4 pounds.

³ U. S. Department of Agriculture, *Bulletin 651*, p. 14.

The principle of diminishing returns may be illustrated with respect to labor by the following hypothetical example:

Number of Hours Labor Applied per Acre	Crop Yield in Bushels	Added Units of Labor	Added Units of Yield
20	10	..	..
30	16	10	6
40	24	10	8
50	27	10	3
60	28	10	1

The point of diminishing returns is reached when more than forty hours of labor are applied per acre. Thereafter, the added yield bears a smaller and smaller proportion to the added outlay of capital. The product will not be increased in proportion as the labor is increased.

Several qualifications of the principle of diminishing returns as here illustrated may be noted. First, it is assumed that the efficiency of capital and labor remains constant. If improved machinery or more efficient labor be added, the old point of diminishing returns may be transformed into increasing returns. The new point of diminishing returns would be pushed farther back. Whenever the technology of production changes, due allowance must be made in applying the principle of diminishing return. Second, the law states a relationship merely and only between *added* units of labor or capital and *added* units of yield. The problem is: to obtain an *added* bushel, how many hours of labor or units of capital must be *added*. Will the added hours required to increase the yield one bushel be more or less than the hours required to produce the last bushel? If the last bushel required 5 units of capital to produce, will the next bushel require more than 5 units? If so, diminishing returns are in effect.

Third, diminishing returns are usually accompanied by increased total returns. There is not an absolute decrease of returns, but merely a diminishing rate of increase. If to double the bushels per acre requires four times the labor and capital, returns are still increasing, but not as fast as the increased expenditure of labor and capital. Diminishing returns are a *diminishing rate of increase*. To restrict the meaning of diminishing returns in this manner many writers prefer to use the phrase, "diminishing increment," or the phrase, "diminishing productivity."

The law of diminishing returns has traditionally been stated in terms of physical units. Product has been stated in terms of bushels or pounds, labor in hours or days, capital in physical quantities. But this traditional terminology places certain limitations upon the use of the principle when attempt is made to apply it to the modern money economy. Agriculture has come fully under the pecuniary régime, and has accepted

the methods of business. Farming has been thoroughly incorporated into the price system. Consequently, modern conditions call for a statement of the principle of diminishing returns in terms of money and price. Product is measured in terms of its money value. Capital is measured in terms of its money value. Labor is measured in terms of its money value. The unit of measurement of all factors is the dollar, or other money unit.

The following hypothetical examples illustrate possible forms of stating the pecuniary principle of diminishing returns. Let us assume that on a given acre of land, \$25.00 of labor yields \$50.00 worth of product. The farmer seeks to discover the amount of additional labor required to produce \$10.00 additional crop. The calculations may be assumed somewhat as follows:

First	\$10.00	increase of	product	requires	\$4.00	additional	labor
Second	"	"	"	"	"	\$5.00	"
Third	"	"	"	"	"	\$6.00	"

In each step of this calculation, more and more labor is required to produce an additional \$10.00 in value of crop. Diminishing returns are in effect.

The calculation might also be made in the following terms:

First	\$5.00	additional	labor	will	increase	the	product	\$10.00
Next	"	"	"	"	"	"	"	9.00
Next	"	"	"	"	"	"	"	7.00

The same amount of additional installments of labor yield less and less value of product. The law of diminishing returns is in effect.⁴

Even the foregoing pecuniary statement of the principle of diminishing returns is inadequate for the needs of the money economy. To make practical application of the principle to the business of agriculture, it is advantageous to shift the statement from *returns* to *unit costs*. By taking unit costs, we inquire the cost of each factor, land, labor, and capital, per unit of output, and we inquire the total cost of all these factors per unit of output. Unit costs have been found the most expedient method of calculation in this field by modern accountancy. Unit costs are a device of accounting, aimed to serve the purpose of a statistical tool. Expressed in terms of unit costs, then, a condition of diminishing returns is one in which the average cost per unit of product increases as labor or capital is added to the use of the land. Let us assume that the unit of output is \$100 worth of product. The conditions of cost

⁴In economic literature, a great variety of forms of statement of the law of diminishing returns appears. To exhaust the list of different forms in this treatment would be tedious and confusing. The attempt here made is chiefly to state the more common and simple form of the law. But no pretense is made that these explanations cover all possible forms of statement.

necessary to secure an additional \$100 worth of product may be assumed as follows:

- I. To secure first \$100 increase requires \$60 increased expenditure
- II. To secure next \$100 increase requires \$50 increased expenditure
- III. To secure next \$100 increase requires \$50 increased expenditure
- IV. To secure next \$100 increase requires \$70 increased expenditure
- V. To secure next \$100 increase requires \$100 increased expenditure
- VI. To secure next \$100 increase requires \$125 increased expenditure

Five different stages appear in this illustration. The separate stages may be stated as follows, corresponding with the like numbered stages in the above illustration:

Stage Corresponding with Preceding Illustration	Stage Stated in Terms of Costs	Stage Stated in Terms of Returns
I-II	Decreasing costs	Increasing returns
II-III	Constant costs	Constant returns
III-IV	Increasing costs	Decreasing returns
IV-V	Marginal costs	Zero returns
V-VI	Excessive costs	Less than zero returns

According as different degrees of labor and capital are applied the returns increase (1) faster than labor or capital, (2) just as fast, (3) slower, (4) not at all, (5) or with cost exceeding income and consequent actual loss.

In this analysis, the law of diminishing returns is expressed in the form of a law of increasing costs per unit of output. In the shifting, new implications are involved, and the new law is not identical in detail with the old. Nevertheless, the new law embodies the essence of the traditional law of diminishing returns. And it does this in a form which squares with modern accounting and which is a more practicable and workable instrument of calculation in the hands of the user of land. The practical question in the mind of the user of land is: If I increase my expense for labor or capital, will my unit costs of production increase or decrease? *The unit cost concept is the indispensable thinking tool for the solution of this practical problem.*

Increasing Costs and the Principle of Proportionality.—Increasing costs and decreasing returns introduce the most important problems in the use of land. These problems center around the best proportioning of the factors of production. The farmer is anxious to realize the largest possible net returns on his land. Shall he buy more machinery, more fertilizer, more capital of any other kind? Shall he hire more labor? What shall his answers be to these vital questions? In general, he will

tend to add more capital until increasing costs approach the point of marginal costs and returns approach zero. He will tend to increase labor until increasing costs approach the point of marginal costs and returns approach zero. And the combination of factors will be in such proportion as will be expected to yield the largest net returns from a given total expenditure.

Assume the size of a piece of land to be constant. Then, without any change in land, we may multiply the use of both labor and capital. Or, without any change in land, we may let the use of capital remain the same, but multiply the use of labor. Or without any change in land, we may let the use of labor remain the same, but multiply the use of capital. When we get the most advantageous combination of these factors, we have the right proportional use of land, labor, and capital.

During the last few decades in the United States, there has been a development in the direction of more use of capital and less use of labor. Machinery has displaced labor. A new proportioning of the factors of production has taken place. Capital has been given more importance and labor has been given less importance. This re-proportioning of factors has gone on in obedience to the laws of increasing and decreasing costs. It was found that additional use of capital meant decreasing unit costs whereas additional use of labor meant increasing costs. It was necessary to check the use of the factor which meant increasing costs and to augment the use of the factor which meant decreasing costs. The new combination of labor and capital is aimed to secure a larger net return in proportion to expenditure. Unit costs are kept down by the re-proportioning of the factors of production.

The strategy of successful use of the land centers around the wise proportioning of the factors of production. The proportioning actually found is a result of many factors. The proportioning varies greatly from country to country. It varies greatly in the same country from one period to another. It varies with the density of population. It varies with the technology of production, the invention of new machinery, the discovery of new processes. But whatever the variation, one of the most crucial factors in profitable use of the land is the best combination of factors to secure low unit costs of production on the maximum amount of product.

The same principles apply to forms of land production other than agriculture. For instance, urban building sites present a basic problem of diminishing returns, or increasing unit costs. Capital may be added to a given piece of building land by building higher above ground and lower below ground. Skyscrapers and basements are the typical forms of intensive use of building sites. Whether to build a ten-story or a forty-story building is a problem requiring fine calculations. In general the determining factor is the tendency for unit costs per square foot of floor space to reach the point of increasing expenditure, which indicates the point of diminishing returns. Beyond this point, the higher the building the higher the unit costs, and the higher the unit costs, the less

the rate of additional returns on the land in proportion to the additional costs of capital and labor. Similar applications of the principle of diminishing returns may be made to mining, water-power development, and other forms of utilization of the land.⁵

Diminishing Returns and Size of Management.—The foregoing analysis of diminishing returns applies to changes in the proportions between the several factors in production. But there is another important application of the general principle of diminishing returns, namely, an application to the size of management. Assuming land, labor, and capital to hold a constant proportion to each other, the total size of the farm, or mine, or realty company is subject to a law of diminishing returns. Additions to total size may yield increasing returns at first due to the advantages of large scale production. But when carried to further extremes, such additions tend to reach the point where diminishing returns set in. When unit costs of production begin to increase, it is an index of overgrown size of management. In agriculture, the most advantageous size of farm varies from product to product. If the farm is devoted to truck products, the point of diminishing returns sets in quickly, and the size of truck farm is therefore limited to a few acres. If the farm is devoted to livestock raising, the point of diminishing returns sets in slowly, and farms may under corporation management be thousands of acres in size. There is an erroneous notion in the popular mind that the small farm is ideal for all purposes. From a poetic standpoint this may be true, but from an economic standpoint it is a useless notion. The proper economic size depends upon where the point of diminishing returns appears.

Diminishing Returns and Growth of Population.—In addition to applying diminishing returns to proportionality and to size, we may also apply it to the general ratio between a country's total land supply and its total population. As the population increases, the need for food and clothing increases, and every acre of land supply is cultivated up to the point of diminishing returns. Poorer and poorer grades of land are brought into use, and more and more labor and capital per acre are employed. The unit cost of crop production mounts higher and higher, until diminishing returns put a limit upon the capacity of the soil to support the growing population. This tendency is subject to various exceptions and counter-influences which are discussed separately in the treatment of problems of population.

The Intensive and Extensive Margins.—There are two opposite ways of increasing the product of the land, namely, intensive and extensive cultivation. In Australia a wheat farmer, with the aid of machinery, may cultivate more than five hundred acres of soil. In Japan, one man, by exhaustive labor, may extract a living from two

⁵ The Ricardian analysis stressed the doctrine that diminishing returns applied to the added costs of only the last portions, the added portions of product. Modern accounting rejects this notion of the last bushel of wheat costing more than the first, and deals with full average costs per unit, *i.e.*, per bushel or per \$100 of product.

acres of land. The former, or extensive, method involves the use of little labor on much land. The latter, or intensive, method, involves the use of much labor on little land. Either of these tendencies is limited by certain margins of returns. Extensive farming will approach the margin where the attempt to stretch the same labor over additional acres of land will not yield returns worth the effort. Intensive farming will approach the margin where the attempt to concentrate more labor and capital on the same land will not yield returns worth the outlay. The greatest output per laborer occurs where extensive farming is approaching the extensive margin. The greatest output per acre of land occurs where intensive farming is approaching the intensive margin.

A new country, blessed with rich and virgin soil, usually employs extensive farming. With land abundant, and labor scarce, each farmer will work a large area, and the effort will be to rely upon the natural fertility of the soil to yield the desired crops. European countries have for the most part developed intensive methods of farming. Japan, China, and India have carried intensive application of labor on the soil to an extreme. The United States has in the past leaned toward extensive farming, but is now in the transition stage toward more intensive farming. Australia, Argentina, and other new countries represent the extreme of extensive farming. As population encroaches upon the supply of good land, poorer grades of land are brought into use and greater amounts of labor and capital are applied to all grades of land. This involves pushing farther and farther toward the intensive margin.

There is a general tendency for the extensive and intensive margins of returns to be equivalent. Each method tends to be pushed to the point where further additions of land, labor or capital would not yield returns worth the outlay. The point of marginal cost of production and of marginal returns will tend to be the same whichever method is used. The margin, in either case, is the no-rent margin, or the point where the cultivation of the land ceases to earn the net income necessary to induce continued production.

Intensive and extensive methods of land use apply to other uses of land besides farming. For instance, the urban realtor may make intensive use of a small plot of land by building twenty or forty stories high and digging far below ground, or he may acquire the same floor space by going to the outskirts of the city and sprawling a building two stories high over a large ground area. In either case, the margins of no returns will eventually appear and will check the intensive or extensive method of utilizing urban sites.

The Scarcity Aspect of Land Returns.—The fertility of the soil is not one bit more important to the farmer than the proper amount of sunshine and rainfall. Yet the farmer pays a price for the use of the soil whereas he receives free the use of sun and rain. This contrast leads the way to an explanation of the basic relation which supply of land bears to the price paid for the use of it. People pay for land, not because it is fertile, but because it is scarce relative to the demand.

Scarcity of the better grades of land accounts for the value placed upon them. People do not pay for the all important sun and rain because it is not scarce. If in a given region scanty rainfall has to be supplemented by irrigation, people then have to pay for water used on the land, because it is scarce. If a man wishes to grow plants in a greenhouse, and has to supplement the heat of the sun with artificial heat, he has to pay for heat because it is then scarce. In the case of land, if there were unlimited quantities of the better grades of land and of the superior locations, no price could be charged for the use of land.

To make clear the larger bearings of these principles, it is necessary to show the relation of this principle of scarcity to the principle of demand. Scarcity deals with the *supply* side of the laws of value and of price as applied to land. In the discussion of demand it was pointed out that users of land are willing to pay a price for the use of land because they expect by so doing to gain added income. *Demand* is governed by the prospect of income from the use of land. But demand alone does not explain land value, because the utility of air, sunshine, and rainfall is just as important in the prospect of income, yet no price is paid for the use of these. Supply enters into the value equation, and it is the fact of a limited quantity of the better kinds of land which enables people to own it and charge a price for the use of it. Not the fact merely that there is a supply, but the fact that there is a distinct scarcity of this supply relative to demand, causes a price and a value to be placed upon its use. *The price of the use of land is, therefore, the point of balance between scarcity on the side of supply and of the prospect of income on the side of demand.* Whatever affects either of these two factors sways the price of land use.

Since scarcity gives the key to value theory, on the side of supply, it is necessary to inquire what causes scarcity to be great or small.

Within certain limits, the scarcity of the land is, in Ricardo's phrase, "original and indestructible." Some of the fertility of the soil may be exhausted by cultivation, but there still remains the fundamental chemical and physical composition of the soil. However much fertility may be wasted, certain qualities of the soil remain which are undiminished. Likewise, in the promotion of urban real estate, the best sites for heavy buildings are sharply limited, and can not be moved, expanded, or contracted. Their scarcity is, in this sense, original and indestructible. In mining, nature offers a fixed supply of mineral ores, so much and no more, and once the minerals are mined, that part of the supply is irreplaceable. Coal, iron, petroleum, for instance, exhibit a present scarcity so far as the better grades of mines and wells are concerned, and an ultimate absolute scarcity of the total geological supply.

In an effort to provide a means of measuring this "original and indestructible" part of scarcity, the Ricardian analysis assumes the case of two adjacent farms of equal acreage. Two farmers of equal ability give equal labor and employ equal capital in cultivating their

respective farms. At the end of the year it is found that one farmer has produced barely enough crops to cover expenses, whereas the other has gained a generous amount of net returns. The difference is explainable only by the fact that the two farms were different in the original qualities of the soil. This difference gives rise to pure ground rent. The higher value of the one farmer's crops is due, in this assumed case, not to any virtue or ability of the owner or user of the land, for in these respects he is no better than the man who tilled the no-rent land. The high value is due solely to natural causes outside any individual's control. Since the high grade farms are scarce, and since this scarcity is within limits original and indestructible, the high grade farms, with their high net returns, command a high price for their use and a high price in the market for land.

But although this original and indestructible aspect of scarcity is important, a variable and controllable aspect is equally important. Economic scarcity of land can be increased or decreased by the creative efforts of men. One method of relieving economic scarcity is production on hitherto unused lands. During the last two decades, farming has been pushed out to the virgin soils of South America, Canada, and the Orient. Within the United States there are vast areas of unused or idle land. Some of these areas are abandoned farms which do not repay cultivation under present prices of farm products. Some are cut-over forest lands which merely need clearing to become productive. Some require drainage or irrigation. Between 1910 and 1920, the land in farms for the United States as a whole increased by 8.8 per cent. This general increase was the arithmetical sum of an actual decline in farm lands east of the Mississippi River and a sharp increase in the farm lands to the west. In urban land, the unused area is often the vertical area. One and two-story buildings frequently occupy building space suitable to ten or twenty-story buildings. In mining, potential beds of ores await exploitation. In this respect, the latent resources of China are of great importance. In water-power, great quantities of energy are now allowed to go to waste which could readily be transformed into hydro-electric power. Scarcity of land in all these respects is a flexible quantity, and with the expanding needs of growing populations, the scarcity is relieved by expansion of production to hitherto idle resources of the land.

A second method of relieving the scarcity of the land is improvement in the methods of production. Superior efficiency in the use of land has an effect upon scarcity equivalent to so much actual increase in the supply of the land. In the United States between 1900 and 1920, physical output per acre of farm lands increased nearly 25 per cent. This is equivalent, so far as scarcity of land is concerned, to an expansion of the area in farm lands of more than 200,000,000 acres. The scarcity of land was relieved to that extent. If there had been no improvement in the technique of farming during the two decades, it would have been necessary in order to produce the output attained in 1920 to have added

to the territory of the country an amount equal to more than the total land in farms east of the Mississippi River. The country practically annexed this extra land supply by virtue of the improved state of the agricultural arts. The use of fertilizers, machinery, superior breeds of plants and livestock, and better transportation facilities profoundly influences the scarcity cause of price and value of land. In the case of urban sites, the development in use of structural steel made possible the skyscraper, and the scarcity of horizontal area was relieved by the greater utilization of vertical area. The scarcity of fuel and energy is gradually finding relief in the development of hydro-electric energy, and in the distribution of electrical energy over wide commercial areas by high voltage transmission. Scarcity of transportation space is relieved by subway lines, one-way traffic on surface streets, and elevated railways over the street surface. Three layers of transportation in one block of space is equivalent to a threefold increase in the economic supply of land.

A third method of relieving economic scarcity is conservation. The most pressing problems of conservation in the United States arise in connection with the exploitation of forests and mineral resources. Land resources, from this viewpoint, may be divided into those whose products are irreplaceable and those whose products are replaceable. The fertility of the soil may be replaced by artificial fertilizers and crop rotation, but the oil, and coal, and iron, when once exhausted, can never be replaced. Water-power is continually and immediately being replaced, but forests can be replaced only by carefully planned reforestation extending over a relatively long period of time. Conservation of all irreplaceable resources of the land is especially urgent as a means of controlling the scarcity of the basic materials of modern existence.

Finally, it remains to be pointed out that since scarcity exists purely relative to demand, the fundamental changes in habits of consumption, by affecting demand, affect also the relative economic scarcity of the land. The demand for automobiles governs in large measure the economic scarcity of petroleum. Where national custom calls for a diet of rice or of rye bread, the economic scarcity of wheat land is relieved. People are getting accustomed to ten and twenty-story apartment houses as a means of overcoming the economic scarcity of urban residential sites. The scarcity of land is regulated in great measure by the new social standards and customs which people acquire and the old social standards and customs which they discard.

Although the economic scarcity of land is influenced in these ways, nevertheless the process of adjusting scarcity of supply to price changes and to demand is not by any means quick and prompt. The slowness of increasing or decreasing the economic supply of land is a marked characteristic of this factor in production. Manufacturers can regulate promptly their volume of output, but farmers require at least a whole season, and usually more, to shift from one crop to another, or to restrict or augment the total volume of production. This slowness of making

adjustment between the pricing factors is an important land problem, and further discussion is devoted to it in the following chapter.

Land Returns and Cost of Production.—It was part of the doctrine of Ricardo that rent on land is not a cost of production, and does not enter into the price of the product of the land. Ricardo said, "Corn is not high because a rent is paid, but a rent is paid because corn is high. That corn which is produced by the greatest quantity of labor is the regulator of the price of corn and rent does not and cannot enter in the least degree as a component part of its price." Although this extreme doctrine is sound enough in the sense that the tenant cannot pass on to the consumer the high sum of his rent in the form of a higher price for corn or wheat, nevertheless it ignores one most important feature of the pricing process.

This feature is the scarcity principle. The price of corn is high or low, not directly because of the cost of growing it, but because of the scarcity or plenty of the supply grown. Neither rent nor cost enters into the price of the products of the land except as they affect the scarcity of those products. If land returns are high, people will be encouraged to expand production, with the result that scarcity will be relieved, more corn and wheat will be grown, and prices will fall. If land returns are low, people will be encouraged to contract production, with the result that scarcity will be intensified, less corn and wheat will be grown, and prices will rise. Thus, scarcity is much influenced by costs of production, by land returns, by rents. The only way in which any of these factors can influence the price of the products of the soil is by first affecting the scarcity of these products. It is the scarcity of the product which determines price. Only as cost affects scarcity can it affect the price of the products of the land.

To understand the relation between cost and scarcity, it is necessary to study the distinction between the marginal farm and the farm above the margin. A farm earns more than marginal returns, not by charging a higher price for its products than the price to the marginal farm, but by producing at a lower cost. High earnings are due not to profiteering but to economy. The better farms have lower costs but sell at the same price per bushel. If it costs one farmer two dollars to raise a bushel of wheat and another farmer one dollar, the market price of wheat cannot be less than two dollars. If it were less, the first farmer would be driven out of business, and a shortage of the supply of wheat would ensue. The second farmer could afford to sell at much less than two dollars per bushel, but he does not have to do so because the market price is set by the marginal or high cost farmer. The more efficient and the more prosperous farmers produce at a lower cost per bushel, but they get the same price per bushel as the marginal farmers. Consequently, we may say that the economy of low-cost production is not a factor in the price of the product of the land. Instead of using the Ricardian formula that rent is no part of cost or of price, we may use the formula that economy is not a cause of high price. The price of wheat is fixed not

by what low-cost farmers can afford to take for their crop, but by what high-cost farmers must receive if they are to be kept in the business of wheat farming.

Directly, therefore, the economy of the low-cost farmer is not a determinant of price. However, there is more to the pricing process than this direct connection between marginal costs and price. Indirectly, the economy and consequent prosperity of the low-cost farmer will affect the scarcity of the product. And a change of scarcity will cause a change in price. This effect of low-cost production by the prosperous farmer upon scarcity may be illustrated by the case of wheat farming. When it becomes apparent that wheat farmers are waxing prosperous because so many of them are producing at low costs but selling at the prices necessary to sustain the marginal farmer, there arises the tendency for more people to engage in wheat farming. Prosperity in wheat farming lures them into the business. They obtain wheat land by draining swamps, irrigating the semi-arid regions, and shifting land from grazing or corn growing to wheat growing. They use more and more labor and capital on each acre of land. In other words they push out farther and farther towards the intensive and extensive margins of wheat cultivation. But while this process of wheat expansion is going on, the crop increases, and larger supply is put on the market. Scarcity of wheat is affected, and the force which originally set in motion the causes affecting scarcity was the prosperity of the low-cost farmer. It should be obvious that the prosperous income of the low-cost farmer does not tend to enhance the price of wheat but to lower it. Prosperity leads to greater production of wheat, and this lessened scarcity lowers the price of wheat. Just as soon as prosperity due to low-cost farming leads to over-production of wheat, price slumps. After price slump has driven the poorest farmers out of wheat growing, under-production of wheat results, and price rises. Under-production and over-production are affected by the size of land returns. They are phases of the basic problem of scarcity, and illustrate the general principle that either rent or cost affects price only in so far as they first cause some alteration in the scarcity of the product.

Value Appreciation and Unearned Increment.—Many fortunes have been made by buying up tracts of land which in the course of time have come to be favorite building sites in large cities. The high value of city real estate is due to the growth of city populations and to general social progress. Agricultural land appreciates in value in the same manner, although not to the same extreme degree. The free lands disbursed under the Homestead Acts have come to possess a substantial market value due to their development by farm cultivation and to the demand for their products due to expansion of markets and growth of population. Appreciation in value is a primary objective of the buyer of land. He is often willing to sacrifice a high rate of present returns on his investment for the sake of reaping a large ultimate harvest in the form of a sharp increment in the value of the investment.

The amount of appreciation in value is a direct reflection of increases in the net income that can be derived from the use of the land. It will be remembered that the value of land is fundamentally a capitalization of the net income which the land will yield. When social changes and industrial growth enable certain pieces of land to yield higher net returns, the capitalized values of these areas rise accordingly. Hence appreciation in land value is directly due to the increment in land returns.

This increment in land returns is often called an *unearned increment*. It is referred to in this way because the cause of the rise in value is said not to be any productive effort on the part of the individual owner but the growth of population and the general social changes over which the individual owner of land has limited if any control. The progress of society, it is said, produced the increment of net income and of value, but the benefit of this increment redounds to the gain of the individual owner of the realty. Where this extreme analysis of unearned increment is assumed, there follows the conclusion that since society produced it, society should take it. The method of taking it is by taxation. Carried to its logical conclusion, this proposal leads to the doctrine of the single tax advocates that a drastic tax should be levied on the unearned increment of land in order that the entire increment should be made to revert to society. The criticism of this proposal may be left to the chapters on taxation, but at this point it is necessary to understand the connection between problems of land taxation and of increments in value and rents.

It is doubtless an exaggeration of facts to assume that all of the increment of value and rent is *unearned*. The owner of the land usually is active in developing the uses of the land, and if his service is rendered in ways which result in the right location of buildings and parks for public use, the resulting increment in value of land is in large measure a result of forethought and planning. The dividing line between increment which is earned and increment which is unearned has to be separately determined for each individual case, but it is important to recognize that the function of the real estate dealer and owner is not an unproductive one. The increment of value is due in substantial measure to risks and services which are of indispensable value to society, and the appreciation of land value and the increment of land income are to that degree a legitimate and necessary reward for economic services rendered.

The criticism of land income often leads to the assertion that all rent on land is unearned. This assertion is limited more especially to that form of land returns which has previously been defined as pure ground rent. The income which is attributable to the original and indestructible physical scarcity of the land is not created at all by the hand of man, so the argument runs. This scarcity is determined purely by the free and unaided gifts of nature. Man did not produce it and man cannot destroy it. Consequently man cannot earn the income attributable to the natural physical conditions. The single taxers extend their doctrine,

therefore, to conclude that the entire ground rent of land should be taken by taxation. The further criticism of this proposal must be left to the chapters on taxation, but it is well to have in mind the logical basis for the proposal. We must grant the truth of the assertion that rent due to pure physical scarcity is unearned, but this concession is not to be taken as a warrant for the conclusion that this income should be entirely wiped out by taxation. The word unearned is here used chiefly in an abstract ethical sense. In the economic sense, the income may be in part or in whole necessary as an incentive to the full and proper utilization of the land. The development and improvement of uses of the land is animated in large degree by just this prospect of unusually large returns. To wipe out the possibility of super-normal returns would be to deaden the incentives to the full utilization of the land. In short, although pure ground rent may be unearned in some abstract ethical sense, nevertheless in the economic sense a substantial part of it is necessary as an incentive for the best improvement and development of the resources of the land.

General Point of View.—The present chapter has been devoted mainly to basic definitions and principles. The abstract concepts involved are necessary as working tools for the analysis of the pressing problems of agriculture, mining, urban realty, water-power, and the like. The presentation of the definitions and of the technical terminology does not supply an answer to these problems, but it is essential as a means of stating the problems in the first place as a means of providing thinking tools for analysis in the second place. The following chapters on land problems bring these principles down to concrete applications, and make use of them in dealing with the tangible situations which confront modern economics. Quantitative measurements are combined with abstract principles to arrive at concrete findings on definite problems.

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CHAPTER XVIII

PROBLEMS OF AGRICULTURE

Balance in Agricultural Relations.—Agriculture does not lead an independent and isolated existence. It is part of a larger mechanism, both physical and pecuniary, which inter-relates all branches of economic activity. The prosperity of agriculture rests upon a delicate balance between those who live on the farms and those who live in the cities. It rests upon a delicate balance between transportation, manufacture, commerce and agriculture itself. This sensitive equilibrium of the great industries may be considered under the following heads:

1. The balance of farm income with general income.
2. The balance of farm accumulation of wealth.
3. The balance of population between agriculture and industry.
4. The balance of production between agriculture and industry.
5. The balance of farm prices with other prices.

From an examination of these major phases of agricultural equilibrium, it will be found that there are no magic forces which automatically guarantee to agriculture a smooth and orderly progress. Supply and demand, although always operative, nevertheless do not maintain steadily and consistently a balanced farm prosperity. The history of agriculture is a record of alternating progress and decay on the farm. The workers of the farms attain the peak of good fortune for a time, only to be pitched down to dismay and disaster later on. The central problem of the farm is how to maintain a constant balance with all other phases of economic activity, to the end that the mutual interdependence of the farm and other industry may result in their mutual prosperity.

The Balance of Farm Income with General Income.—The real income of the farmer has normally been less than the real income of the remaining industrial population. The following table compares the percentage of the total income of the United States which goes to agriculture with the percentage of the total number of persons having gainful occupations who are engaged in agriculture. This percentage comparison indicates that the farmer receives less income in proportion to population than the average of other classes of producers.¹

¹ See *American Economic Review Supplement*, March, 1923, p. 137; *Report of the Joint Commission of Agricultural Inquiry*, 1921, Part 8, p. 51.

	1889	1899	1909	1913	1918	1919	1920
Percentage of total income of United States going to agriculture	12.8	14.1	16.2	16.5	20.4	22.8	13.6
Percentage of total number of persons having gainful occupations, who are engaged in agriculture	39.0	36.0	33.0		28.0		26

It will be noticed that the farmer's share of income increased materially from 1889 to 1919. Over a period of thirty years, farm income was rising proportionately to total income of the country, but farm population in proportion to total population was declining. With more income going to agriculture and with fewer people proportionately engaged in agriculture, there was a steady tendency to greater per capita income in farming. The average individual farmer was much better off in 1918 and 1919 than he had ever been before. The average income of persons engaged in agriculture from 1913 down to 1919 was about 30 per cent higher than it had been from ten to fifteen years earlier. The war period was the peak period of farm prosperity.

And yet, even in these best of days for agriculture, farm income was less per capita than the income of other producers. Agriculture has produced from 14 to 23 per cent of the national income of the United States, normally about 17 or 18 per cent, and yet more than 26 per cent of the persons gainfully employed in the United States are engaged in agriculture. During the most favorable period in American agriculture, the average per capita income on the farm was only a little more than one-half that of the people engaged in other major industries. For example, in 1918, which was a good year for the farmer, the average per capita income of the farm population was only \$359 as contrasted with \$677 per capita for the non-farm population. A comparison of per capita farm income with per capita non-farm income is given below: ²

Year	Farm Income per Capita	Non-farm Income per Capita
1918	\$359	\$677
1919	409	710
1920	244	838

In the best years, farm income is much less than the income of other classes. In the worst years, as for example in 1920, the farm income is

² See L. C. Gray, *American Economic Review Supplement*, March, 1923, pp. 173-176, and *Report of Joint Commission of Agricultural Inquiry*, 1921, Part I, p. 51.

less than a third as much per capita as the income of other classes. Farm income undergoes violent fluctuations. In 1920 it was but little more than half what it had been in previous years. Farm incomes in 1922 were but little better than in 1920. The restoration of farm prosperity means not the restoration of farm incomes to an equality with the income of other classes, but to the ratio which prevailed from 1913 to 1919. At this ratio, farm income was only a little more than half the per capita income of other classes.³ The desire to escape from the low income of 1920 to 1924 has been the desire to escape the very low ratio of farm income to other income which prevailed 25 years ago. It has been the desire to recover and retain the ratio of farm income to other income which the farmer enjoyed in 1919. That ratio, although not by any means equal to other income, was nevertheless the best per capita income ever attained by the American farmer.

What is the pathway to maintenance of a high farm income? It is the maintenance of the right scarcity of farm production. Scarcity varies with the balance between agricultural and other factors. The balance of population changing by people moving from farm to city, the balance of production changing by the increase of factory hands and the decrease of farm hands, the balance of price changing by bringing the price of farm products up to a par with other prices,—all of these changes in the balance between farm and city are fundamental in determining the scarcity of farm products.

Agriculture as a broad type of industry does not yield to the farmer a profit in the business sense of the word. To the business man, profit is a reward for risk and enterprise, over and above the expenses of capital and of wages of management. But after the farmer has paid a normal rate of interest on his capital and has allowed for a salary or wage for his own labor there is nothing left for profits. As a matter of fact, after the farmer has made allowance for his necessary capital cost, the residue available as a wage for his own labor is actually less on the average than the wage paid to other leading lines of industries. For instance, it is found that if in the year 1913 the farmer had gone to work as a laborer, his average labor income would have been \$444 instead of \$328, as it was. If he had worked as a miner instead of as a farmer, he would have received \$755 or about 70 per cent more than the income for his labor received on the farm. Hence, not only is there not on the average any profit income to the farmer, but his labor income is actually less than labor income in other leading lines of business. The farmer's only real return is a wage return, and this a small wage in comparison with those paid in other industries. The farmer is not a profit maker, but a wage earner. He belongs to the laboring classes in classification of his income. He is a capitalist only in the

³ See O. E. Baker, *American Economic Review Supplement*, March, 1923. Estimates of farm income necessarily make some provision to include non-cash income, such as value of house rent, and of food and fuel raised on farm and consumed directly. This non-cash income amounts to about one-fifth of the farmer's gross income.

sense that he conducts an independent business and has a small capital invested in farm property. His return is not the return familiar to capitalistic business, since it contains on the average no profit reward for risk. It contains solely a very moderate reward for labor. This holds true no matter whether the farmer owns his own farm or not, for if he owns his farm as a result of his own purchase, the farm represents merely his personal savings out of labor income over a period of years.

The use of averages in measuring these factors is bound to be misleading unless the actual variations which underlie the averages are made clear. In 1919, an unusually prosperous year in the South, farmers' incomes in the South were about one-third of those in Illinois, Iowa and Nebraska. The low incomes of croppers, negroes, and poor labor on southern farms pulls down the average which the corn belt farms tend to attain. The appreciation of land value in Iowa was from \$82 per acre in 1910 to \$199 per acre in 1920, whereas the appreciation in New York was only from \$32 to \$38 per acre. In New Mexico an actual depreciation of value took place in the same decade. While certain areas are undergoing unusual depression, other areas are on the incline. These sectional variations do not destroy the significance of general averages, but must be considered in their use.

The Balance of Farm Accumulation of Wealth.—Although the farm per capita income has been only a little more than half the per capita income of other classes, the farm accumulation of wealth per capita has been about two-thirds of the wealth accumulation of other classes. In 1920, for instance, the estimated per capita net worth of the farming class was \$1,978, as compared with a per capita net worth of \$3,175 for the non-farming classes.⁴

The accumulation of farm wealth is kept fairly well in the hands of either active or retired farm landlords. About two-thirds of all landlords are either retired farmers or active farmers. The absentee landlord has not as yet come to the point of dominating farm ownership. The typical owner is a person who is either engaged in farming or has been so engaged for the larger part of his life. Absentee ownership has not, therefore, come to be the severe problem which it is in many old world countries. The owner usually lives either on the farm or in a town not far distant and is personally known to the worker of the farm and gives some degree of personal interest and supervision to the operation of the farm.

The accumulation of farm wealth is complicated by the appreciation of land values. Although land value is not the sole form of farm wealth, nevertheless it does make up approximately 70 per cent of the total farm wealth of all kinds. The farmer's wealth is chiefly the value of his land. This value is, as previously explained, a capitalization of the earning power of the land. Every change in income, either actual or prospec-

⁴ See estimates by L. C. Gray and W. I. King, *American Economic Review Supplement*, March, 1923, p. 169.

tive, effects a change in the capitalized value of the land. The value of farm land increased during a 20-year period as follows:

Year	Farm Land Value of United States
1900	\$13,000,000,000
1910	26,000,000,000
1920	54,000,000,000
Increase 1900-1920	\$41,000,000,000

Within a period of twenty years, farm land values increased more than 200 per cent. At first glance, this seems to indicate that the farmer became immensely more wealthy by this appreciation in land value. But this seeming benefit must be heavily discounted on account of changes in the price level and the purchasing power of money. The price level of all commodities increased nearly 200 per cent between 1900 and 1920, and therefore the major part of the appreciation in land values was simply an adjustment to the new price level. The increased land value of the twenty-year period did not represent purely increased purchasing power, but, to a very large degree, merely a tendency of land prices to keep up with general prices.

And yet, in spite of this qualification, the farmer gained a substantial increase of wealth. He was steadily becoming more prosperous, and this was chiefly because of the appreciation of his land in value. This appreciation in so far as it was real and not a mere rise of price level was due to the rising real income of the farmer. When the agricultural depression of 1920 arrived, the inflation of land values was wiped out. Farmers who bought land at the high peak found their property mortgaged for far more than it was worth. The deflation of land values caught upwards of one million farmers in bankruptcy. Such gains in wealth as had been made before 1920 were liquidated unmercifully. The appreciation in land values that had at one time looked so attractive proved then to be disastrous to the mass of farmers. Speculation in land values proved to be a calling which the farmer had not mastered.

The farm classes have never acquired riches from returns on their labor, because they have received on the average lower income than the workers in other occupations. The only income resembling a profit which the farmer has received has been the pure appreciation of his land values. If a farmer was lucky enough to buy land when it was cheap and sell it after it had undergone appreciation, he was richer for the transaction. But in order that he might make that gain, some other farmer must have bought the land at a high peak of value, and then lost it by foreclosure or sold it deliberately at a time of deflated value. One gain was built upon the other loss. The dreams of wealth held by the farmer have been rudely shattered by the alternating inflation and deflation of land values, and by the changes in general price level at

the same time as the changes in farm land prices have occurred. Some gain has accrued from appreciation, some bankruptcy has occurred, some net increase of real farm wealth has occurred, but the increment of farm wealth due to appreciation of value has not been sufficient to give the farmer an amount of property commensurate with that enjoyed by other classes of producers.

The Balance of Population between Agriculture and Industry.—To preserve a proper balance in the economic system, it is essential that the right distribution of population be maintained between farm and urban communities. What distribution is “right,” from the economic viewpoint, depends upon a number of conditions. What proportion of farm to urban population is right at one stage of a country’s development becomes wrong at a later stage. In order that the balance of population between country and city may be right continuously, the proportion must change from time to time in order to make adjustment to new conditions of production, new inventions, new standards of living.

The population of the United States increased from 75,000,000 in 1900 to 105,000,000 in 1920. This increase of 30,000,000 people went almost entirely into the urban communities. Farm population remained almost stationary during the twenty-year period. This fact is reflected in the numbers of gainfully employed over ten years of age in agriculture,—10,248,935 in 1900, and only 10,682,944 in 1920. During the period, there were 12,500,000 gainfully employed people added to our population, but their employment was found in town and city, not on the farm. The balance of population was maintained by adding to the workers and consumers in urban communities and by leaving the number of farmers practically unchanged. Since 1920, agricultural depression has driven a great many more people from the farms, although we do not yet have the exact census estimates. Meantime, the total population has increased to the estimated number of 112,826,000 in 1924, or an annual rate of increase of 1,778,850 since 1920. Population at the rate of more than one and a half millions yearly is being crowded into city and town, and requires to be fed by a farm population that is practically stationary, or even actually on the decline.

According to the statistics, the per cent of increase of city population between 1900 and 1920 was 60 per cent, whereas that for farm population was only about 4 per cent. On the basis of 1900 as an index of 100, the number of persons engaged in leading forms of production in 1920 is shown by the following indexes:

Agriculture	104
Manufactures	208
Mines	170
Railroads	199

While agriculture was employing a virtually stationary number of workers, manufacture employed more than double the number and mines

and railroads nearly doubled the number that had been employed in 1900. The new workers are almost exclusively workers in factory, mine and railroad.

But in spite of this drastic change of proportions between farm and non-farm population, the farmers increased the production of food fast enough to keep pace with the increase of city population. Speaking with approximation, we find that in 1900 each farmer, with his hired man, fed on an average about six other people than himself (not counting his family) and one more person abroad. By 1920, each farmer, with his hired man, fed on an average about nine other people and one more person abroad. Today each farmer feeds at least three more people than twenty-five years ago. Fewer farmers feed more people. Not so large a per cent of our population needs to be rural as a generation ago. Whereas in 1900 it required more than 40 per cent of the population to feed the whole population, today it requires less than 30 per cent to feed the whole. The efficiency of the farmer has enabled him to feed the rapidly growing city population. Increased efficiency combined with increase of population has required a new proportioning between farm and city. The popular notion that our real task is to get more people onto the farms and keep them out of the towns has no foundation. Our real problem is to get more people off the farms and into the towns in order to maintain a population equilibrium. Over-population or under-population on the farms has to be judged, not by any preconceived notions about the pleasures of life in the great outdoors, but by the balance struck between consumers and producers in the economic markets where the outputs of farm and of factory are exchanged. During the third decade of the present century, the problem in the United States is to keep enough people off the farms to prevent over-production, for over-production brings a price slump which is reflected in a drastic decrease of farm income. How to keep farm incomes commensurate with other incomes is chiefly a question of limiting the population on the farms to that number which will not cause over-production of farm supplies.

The future balance of farm and urban population in the United States cannot be prognosticated with any accuracy, since it is controlled by many unknown future conditions, such, for instance, as further applications of science and invention to agricultural technique or as the extent to which the country may draw its future food supply from overseas regions. A glance at other countries shows that no fixed ratio between farm and urban population exists. In the United States, less than one-third of the population makes its living on the land; in England the ratio is less than one-tenth; in France more than two-fifths; in Germany more than one-third; in other predominantly agricultural countries more than two-thirds. The United States is now more than self-supporting in basic food supply, but her degree of independence is diminishing with the rapid growth of population. The other leading world powers are not self-supporting. Germany under pre-war conditions supported from her

own farms about 72 per cent of her population, France about 70 per cent, Italy about 64 per cent, England about 50 per cent, Belgium about 37 per cent. The trend of the near future promises to be a declining export of farm food products from the United States, followed by an increasing import of food products from abroad. Such a tendency would not unlikely be accompanied by a declining ratio of farm to urban population, and a balance between the two corresponding more and more to that struck in England.

The Balance in Production between Agriculture and Industry.—In spite of the fact that farm population has not increased in anything like the proportion by which the total population has increased, nevertheless the production on the farms has tended to increase at a rate slightly greater than the growth of population. This fact is brought out by the following table: ⁵

Year	Index of Population	Index of Physical Production of Agriculture
1879	100.0	100.0
1890	128.5	118.4
1900	155.1	171.7
1910	187.6	210.5
1914	199.9	230.5
1919	211.9	234.8
1920	214.3	244.6
1921	217.9	212.4
1922	221.4	236.4

According to these indexes, the physical volume of agricultural production has on the whole slightly exceeded the growth of population over a period of about forty-three years. The balance of production between agriculture and industry may further be analyzed by comparing indexes of output in leading lines of production with indexes of the number of people engaged in each line. ⁶

Industry	Per Cent of 1920 to 1900		
	Persons	Production	Relative Output per Person
Agriculture	104	138	133
Manufactures	208	228	110
Mines	170	231	136
Railroads	199	234	147

⁵ See *Harvard Review of Economic Statistics*, July, 1923, p. 196.

⁶ See *Report No. 1*, Research Council, National Transportation Institute.

The indication clearly is that the productive capacity of the average farmer increased fully one-third in the space of two decades. The productive capacity of the average factory worker increased only 10 per cent, that of the railroad workers 47 per cent, and that of the miners thirty-six per cent. The two decades of agricultural production show a history of greatly increased efficiency. The balance of production was maintained in agriculture by superior individual effectiveness in production.

From the viewpoint of the population as a whole, rather than farm population alone, the per capita production of agriculture was sustained at about a constant amount, but the per capita production of manufactured and mined product increased about 60 per cent. Our output of food in 1920 was as much for each one of our 105,000,000 of people in 1920 as it had been in 1900 for our 75,000,000 people, and our output of non-agricultural products was 60 per cent more per person. This increase of product has been the source of a rising standard of living for the masses of the population and of a general increase of socially provided amenities and enjoyments. The balance of production, therefore, has consisted of a steady per capita output of farm product accompanied by 60 per cent greater per capita output of other products than in 1900. The growing efficiency of the farmer has liberated a new population year by year from the necessity of tilling the soil, and has left these people free to engage in industry and trade and thereby to augment the national productive power in all urban lines of enterprise.

It is important to inquire what future changes in farm production in the United States are probable in light of the increasing congestion of population. Although no definite forecast can be given in answer to such a question, nevertheless valuable suggestions may be derived from contemplating the experience of some of the older countries with their already congested populations. The Belgian farmer, carrying intensive cultivation to an extreme, cultivates about five acres per man as compared with twenty-six acres per man in the United States, but in spite of his putting five times as much labor on his land, the Belgian farmer secures only slightly more than twice as great an output per acre. The Japanese farmer applies fifty times the labor to his land that the American farmer does, and yet the yield per acre is only half as much again as the American. The English farmer by intensive cultivation secures about 75 per cent greater output per acre than the American, the German farmer about 69 per cent greater output, and the French farmer about 23 per cent greater output.^{6a} The probability is that the more intensive use of labor on American farms would not increase output per acre by much more than 50 per cent at any time in the approximate future, and would not double output per acre until extreme density of population compelled an ultra-intensive application of labor to each acre. The future balance of production must, therefore, rest upon the assumption of very limited gain from additional use of labor. The most

^{6a} Edward M. East, *Mankind at the Crossroads*, pp. 169-179.

that we could hope to attain, judging by present conditions, would be the power to support one person on each 2.5 acres of tillable soil. The maximum population which the United States could support at anything like present standards of living would probably not be in excess of 200,000,000, and certainly would not be as great as 300,000,000. Just what ratio farm population would bear to urban under such circumstances is of course not known, but the present tendencies indicate that by far the larger part of the growing population will go into the towns and cities. The balance of population is closely related to the balance of production between farm and city.

The problem of balance of farm production with other production is now a matter of maintaining the right degree of scarcity of farm products. The balance is right, economically speaking, when farm products are just scarce enough to command a price comparable with the general level of prices and able to yield a farm income comparable with the income yielded by other lines of industry. If farm production runs ahead too fast, the over-supply relaxes the scarcity of the product on the market and depresses the price too much. If farm production lags behind too much, the under-supply intensifies the scarcity of the product on the market, and raises the price too much. The right balance of farm production is one which maintains the right degree of scarcity, and therefore a price on a par with the prices of non-agricultural products.

The Balance of Farm Prices with Other Prices.—The concrete register of the balance of population and of production is contained in the relation between the prices of farm products and the products of other economic lines. The condition of the farmer as a class may be measured by the prices for the goods he has to sell in comparison with the prices of the goods he has to buy. He is interested in having the amount of product which he raises buy as much as possible of the product turned out by other industries. The ratio between farm prices and other prices is the purchasing power of the farmer's dollar. The table on page 330 compares prices of farm and non-farm commodities since 1913, taking 1913 as a base year with an index of 100. The index of the purchasing power of farm products is arrived at by dividing the farm products index by the index of non-farm products. This index is an approximate measure of the purchasing power of the farmer's dollar, and gives a fair clue to the farmer's real income.

The agricultural depression of 1921 to 1924 stands out in bold relief on this table. In 1921, farm prices were so much less comparatively than non-farm prices that the purchasing power of farm products was only two-thirds what it had been in the last pre-war year. Farm prosperity was above the pre-war level up until 1920, with the exception of the year 1916. The precipitous fall of farm prices began in July of 1920. Within a year prices fell more than one-half. Other goods also fell in price, but in nothing like the extreme ratio which held true for the products of the farm. From 1920 on, farm prosperity was at a low

point. Price maladjustment made everything the farmer sold worth little and everything he bought worth much. The balance between farm and other prices was destroyed. Briefly, the reason was that war demand had caused agriculture to become over-extended and post-war depression had caused per capita consumption of the staple crops to diminish. Over-supply of production and under-demand for farm commodities destroyed the balance between farm prices and other prices. To restore the balance, it was necessary to get some of the excess population on the farms moved into the cities and to obtain a sufficient scarcity of farm production to push farm prices back up to a par with other prices. In other words, balance involves balance between the three factors of farm and urban population, of farm and urban production, and of farm and urban prices. The connecting link between these three factors is the scarcity of the farmer's output relative to demand. Farm prosperity is in this sense of the word a problem of maintaining sufficient scarcity of his product to permit a parity between farm prices and other prices.⁷

COMPARATIVE TREND OF FARM PRICES
(1913 = 100)

Year	Farm Price of Crops and Livestock	Wholesale Price of Non-agricultural Products *	Purchasing Power of Farm Prod- ucts †
1913	100	100	100
1914	106	94	112
1915	102	97	106
1916	118	132	89
1917	186	176	106
1918	208	186	112
1919	216	195	111
1920	203	234	86
1921	108	161	67
1922	112	163	69
1923	120	167	72
1924	134	154	87

* Department of Labor "All Commodities Index," excluding farm products and food.

† Farm product index divided by index of non-agricultural commodities.

The foregoing table rests upon the assumption that the balance of prices which existed in 1913 was normal for the industry. This assump-

⁷ It is possible also to measure the price balance between farming and other industries by comparing the gross value of farm products with the net value added by manufactures. The two values were approximately equal in 1899, 1904, 1909, 1914, and 1919, but during the four years beginning with 1920, the gross value of farm products averaged about one-third less than the value added by manufactures. For a detailed analysis of this method, see David Friday, *Economic World*, November 3, 1923, p. 616, and *American Economic Review Supplement*, March, 1923, pp. 151-155.

tion is not altogether safe. By making a study of the trend of comparative prices over a longer period, we may observe important changes which had been going on in the price balance in previous years. These changes throw light upon the assumption that 1913 was a normal price year. The following table compares farm prices with prices of all commodities since 1899. The all commodities index in this case includes farm commodities as well as commodities in general. The comparison is, therefore, between farm prices and the prices of the total of all commodities, including agriculture.

BUREAU OF LABOR STATISTICS REVISED INDEX NUMBERS OF WHOLESALE PRICES
(1899 = 100)

Year	Farm Products	All Commodities
1899	100	100
1909	152	123
1913	156	127
1919	361	247
1921	194	204
1922	208	206
1923	223	213
1924	225	209

This table shows clearly that the year 1913 was a super-normal year for agriculture, in comparison with a period ten to fifteen years earlier. If farm prices in the year 1899 be assumed as normal, the year 1913 was 23 per cent above normal. During the first decade of the century, farm prices rose more rapidly than the all commodities index. The balance which existed in 1899 was superseded by a new balance in the years just before the war, and the new balance was much more favorable to the farmer. In 1913 the farmer was getting considerably more for everything he sold and was paying relatively less for everything he bought. If we take 1913 as a normal year, we are taking a year of relatively high purchasing power of the farmer's dollar. These considerations throw some light upon the post-war depression in American agriculture, and the normal future balance between farm and other prices.

The ratio between farm and all commodities prices was practically the same in 1922 as it had been in 1899. If 1899 be taken as a normal year, then 1922 was equally normal. And 1923 was more favorable to the farmer than 1899 had been. To speak in terms of the purchasing power of the farmer's dollar, his dollar in 1922 was worth only about two-thirds as much as in 1913, but it was worth slightly more than it had been in 1899. What had happened fundamentally was that during the period from 1899 to 1913, the purchasing power of the farmer's

dollar had increased materially, but that in 1922 it had shrunk back to its balance of twenty-three years earlier.

It is to the interest of the farmer to have the price balance of 1913 restored, for that point represents a high level of purchasing power of farm products. This may be accomplished by bringing other prices down to the farm price level, or by pulling farm prices up to the all commodities level. If farm prices are to be pulled up to the 1913 parity, it is necessary that the right degree of economic scarcity of farm products be attained. Scarcity, as previously analyzed, is an outcome of the balance struck between farm and urban population and farm and urban production. Only by keeping people off the farms and avoiding excess production can the farm price parity of 1913 be restored. Under population and production conditions of 1922, the best that the price situation could offer the farmer was the old, low parity of 1899. With this parity he is no longer satisfied. He is determined to regain his advantageous position of 1913. He aspires to a high normal instead of the old low normal. If he can regulate the scarcity of farm products, there is no reason why economic forces should not give him his high point normal of purchasing power.

This analysis is based upon the causes for the rise in the value of the farmer's dollar between 1899 and 1913. The urban population was growing much faster than farm population, thus creating a strong consumption demand for farm products. Urban production was increasing faster than farm production, thus putting a large supply of manufactured products upon the market. Growing industrial populations of Europe were bidding against the industrial population of the United States for the product of American farms. All such factors were strengthening the side of demand for farm products and were causing a relative scarcity of supply. Farm prices therefore rose faster than other prices. War and post-war conditions destroyed the 1913 balance of production and population, and thereby destroyed the favorable price balance which had prevailed just before the war.

Land Ownership and Tenancy.—Many of the great battles in history have centered around the ownership of the land. The relations between landlord and tenant have been thorny ones. Serfs, slaves, peasants, laborers, and tenants have had interests often sharply opposed to those of the owners of the land. Not infrequently, great economic revolutions have occurred, animated by the determination to redistribute the land on a more democratic basis.

Proprietorship of the land varies widely from country to country. England represents one extreme, where the great bulk of the land is owned by comparatively few wealthy landlords and operated by tenants and hired labor. Denmark, on the other hand, represents the opposite extreme, where the great bulk of the land is operated by the small, independent farmers who own it. The variation between countries is further indicated by the following table:

PERCENTAGE OF TOTAL FARM AREA RENTED AND OPERATED BY TENANTS

Country	Year of Census	Per Cent Rented Area is of Total
England	1914	88.9
Denmark	1918	7.3
Belgium	1910	54.2
France	1892	47.2
Germany	1907	12.7
Japan	1917	46.1
United States	1920	37.0

The United States has shown a tendency to increasing rental-operation of farms, although the rate of increase in the last decade has been less than in the immediately preceding decades. This tendency is shown in the following table:

Year	Per Cent of Tenant Farms to All Farms
1880	25.56
1890	28.49
1900	35.30
1910	37.00
1920	38.10

The increase of tenant farmers in proportion to all farmers was slightly less than 1 per cent in the last decade.⁸ This does not tell the whole story, however, for some states show a decline of tenancy whereas others show a marked increase. Such New England states as Maine, New Hampshire, Massachusetts, and Connecticut had less than 10 per cent of farms operated by tenants in 1920, and showed a decline during the decade ending that year. The greatest increases in tenancy have been occurring in many of the western grain growing states, such as the Dakotas, Minnesota, New Mexico, Arizona, and Montana. Although recent increases in tenancy are greatest in these states, nevertheless their total per cent of farms operated by tenants has not yet reached the high point attained by several of the southern states. For instance, in South Carolina, Mississippi, and Georgia, more than two-thirds of all farms are operated by tenants. In general, tenancy has been declining in the eastern and increasing in the western and southern parts of the country. On the average, four out of every ten of our farms are operated by tenants or managers, but in some of the cotton growing states, seven out of ten are operated by tenants or managers.

⁸ The data refer to the decade 1910-1920. The agricultural depression of 1921 threw many owners into bankruptcy and increased the extent of tenancy at an abnormal rate.

Tenancy is not intrinsically either good or bad. There are so many surrounding circumstances which affect the results of tenancy for good or for evil that it is impossible to bestow any blanket approval or condemnation on the institution. The problem of negro and "poor white" labor in the cotton growing states necessitates the cropper system of tenancy under which plantation owners and managers give a large degree of direction to their tenant labor. Truck farming and dairy farming, on the other hand, require so great a personal stake in the land that the tendency is strongly toward owner-operation of such farms. When the Russian Revolution transferred the estates of 110,000 noble land owners to 20,000,000 peasants, the transition was so sudden that agriculture broke down. The peasant's lack of capital, and often of knowledge or capacity, prevented efficiency under the changed conditions. On the other hand, the attempt to impose collectivist agriculture upon the peasants broke down because of the insistent individualistic land hunger of the peasants. The peasant tillers of the soil in Western Europe, owing to a long background of experience and tradition in methods of cultivation, have developed high productive powers on small farms owned for the most part by the peasants themselves. Even the most autocratic states have preserved peasant proprietorship of the land. England differs from the countries of Western Europe in that her land is concentrated in the hands of a few capitalist owners. These let out the land to tenants who in turn employ hired labor for intensive cultivation. The English methods may be described as capitalist agriculture conducted by large scale management. In Mexico, the revolution has resulted in an effort to break up the feudal estates, but the effort is obstructed by the fact that the ignorance and irresponsibility of the peon incapacitate him for success as an independent farmer. Only as the sons of peons are educated and trained to responsibility can peon ownership solve the land problem of such a country as Mexico. In India, land holdings are excessively small, and proprietorship highly ineffective. Agricultural students are unanimously of the view that crop production per acre in India would be doubled or trebled by the adoption of proper land policies of ownership and tenancy. These illustrations indicate the immense variety in the problem of land control. It is doubtful if there is any one best method of tenancy and ownership for all countries. Tenancy in itself is not bad, and peasant ownership in itself is not good.

Under the conditions prevailing in the United States, the heart of the problem seems to be how to enable the tenant gradually to acquire the ownership of his land. It is found that where the tenant is a person of proper ability and intelligence, the determination to buy the land whereon he works acts as an incentive to conserving the fertility of the soil, to making needed improvements on the farm, to steadiness and stability in operation, to better technical methods of farming, and to increased production on the soil. The United States has no reason for allowing a situation to develop wherein hereditary classes of landed nobility and of landless peasants exist side by side. Her problem is to

keep open the opportunity for the majority of tenants to buy the land on which they toil. Special studies of the life histories of typical farmers indicate that it has been a common experience for a young man to work upwards of ten years as a hired laborer, then upwards of ten years as a tenant, after which he makes his first payment on a farm of his own. Tenancy of this kind has a permanent place in a sound system of land tenure. It is a period of apprenticeship, one stage in the process of rising to the top, a stepping-stone toward eventual ownership. There is evidence that this kind of tenancy is a powerful influence in the United States. Studies of certain farm areas have shown that whereas three-fourths of the young farmers under twenty-five years of age are tenants, only one-third of the farmers between thirty-five and forty-five years are tenants, and only one-fifth of those between fifty-five and sixty-five.

Some of the conditions conducive to tenant purchasing of land may be mentioned as follows: prevention of speculative rising and falling of land values; proper facilities of farm credits and farm mortgages at low interest rates; long term leases on the land making for permanency; sharing by the landowner in the cost of necessary improvements. The objective of such methods is to make tenancy a suitable path to ownership.

The future of farming raises the interesting question: Is there a possibility of transforming the whole basis of agriculture from independent operation in small units to large-scale capitalistic operation? There are important reasons for contemplating such a possibility. Already there are in the United States nearly 70,000 farms of about 800 acres each, operated by managers. Such farms are able to take superior advantage of costly farm machinery and of the most improved scientific methods of stock raising and soil tillage. The inefficiencies of the small farmer are glaring, and his ignorance of the best technique of farming is often appalling. Capitalistic farming would introduce the specialist and the expert, and would apply business methods to every phase of farm management. One authority makes the following forecast, which is quoted here for its suggestive value: "It seems quite probable that ultimately there will be agricultural undertakings comparable in size and scope to the United States Steel Corporation. They will build up voluntarily because of the advantages offered. There will be large farms managed by business executives of high caliber and superintended by men adequately trained in the natural sciences and in farm practice. The methods which have made the American manufacturer successful will make the American farmer successful."⁹

Taxation of Farm Land.—Farm taxation is levied chiefly in the form of a property tax. The income tax has comparatively small influence upon the mass of farmers, since their net income is not sufficient to bring them within the taxable class. The property tax is levied by local governments, town, county, and state. The federal government does not use the property tax. The local governments are chiefly responsible

⁹ E. M. East, *Scribner's*, March, 1924.

for the farm burden of taxation. The federal taxes which affect the farmer are indirect revenues, such as the tariff, and their influence is felt in the form of an increase in the cost of living.

The local governments spend the taxes derived from farms very largely for schools and roads. The remarkable increase of farm taxes in the United States since 1913 is largely due to increased expenditure of local governments for these two purposes. That the increase of taxation has been severe is reflected in the following table:¹⁰

Year	Taxes Paid by Farmers	Taxes Paid by Rest of Community
1913	\$ 624,000,000	\$1,570,000,000
1919	1,232,000,000	6,802,000,000
1921	1,497,000,000	6,866,000,000
1922	1,436,000,000	5,625,000,000

The increase of taxation would not be so severe, if it were accompanied by a like increase in income. But if taxes were to increase at the same time that income decreased the result would be disastrous. From examination of the records of taxes and income, one finds that the two do not fluctuate together. When taxes are about constant, farm incomes may be rising rapidly. When taxes are rising, farm incomes may be falling rapidly. This failure to coördinate taxes and income has an unfortunate effect upon agriculture, for in one period low taxes and high income give the farmers great optimism for the future, and this expectation of greater prosperity is capitalized into higher land values; these inflated land values are in turn taken by the government as a basis for increased assessments for taxation. But by the time the taxes are collected, farm prices may have collapsed, farm income dwindled away, and farmers by the millions been driven into bankruptcy through their inability to pay their taxes. The diagram on page 337 indicates these divergent fluctuations of taxes and farm prices, representing farm income, from 1914 to 1923:¹¹

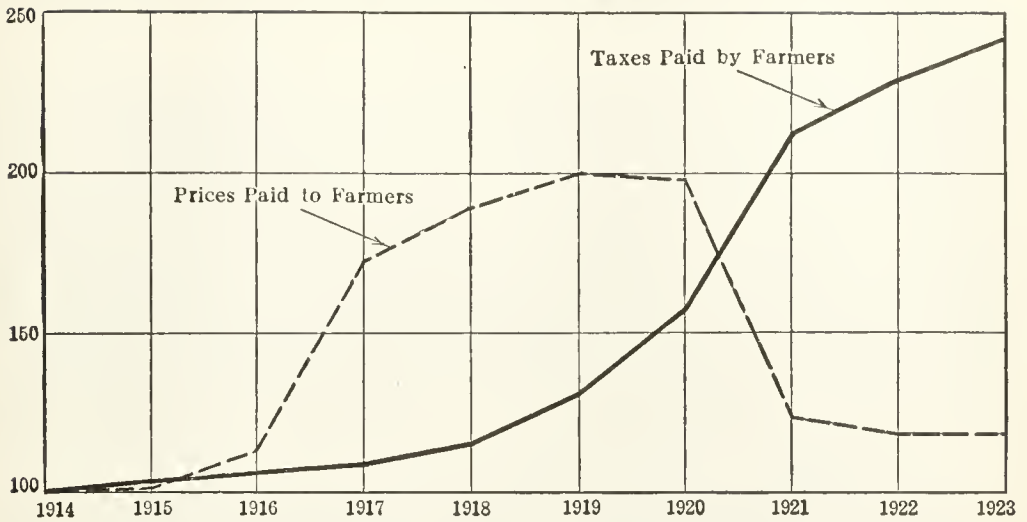
The discrepancy between taxes and prices in 1921 and 1922 is apparent. Special studies of farms in Ohio, Indiana, and Wisconsin revealed that in 1913 taxes on farms were about 9.8 per cent of farm net income, but in 1921 were 33 per cent of farm net income. For the nation as a whole, variations in per cent of taxes to income have been estimated as shown in the table on page 337.¹²

¹⁰ *Tax Burdens and Exemptions*, National Industrial Conference Board, Research Report, No. 64, p. 32, 1923.

¹¹ G. F. Warren and F. A. Pearson, *The Agricultural Situation*, p. 38.

¹² National Industrial Conference Board, Research Report 64, p. 32, 1923; also *Agricultural Yearbook*, 1922, pp. 5-7. For an estimate of the general property taxes paid by farmers, 1914-1923, see *Agricultural Yearbook*, 1923, p. 8.

FARM TAXES AND FARM PRICES



RATIO OF TAXES TO INCOME

Year	Farm Taxes to Farm Income	Other Taxes to Income of Rest of Community
1913	10.6	5.5
1919	8.3	13.2
1921	17.2	16.6
1922	14.3	11.6

The disproportionate share of taxes borne by agriculture in the period from 1920 to 1923 is shown by the following table comparing the ratio of taxes to net returns for three different classes of property.

RATIO OF STATE, COUNTY AND TOWNSHIP TAXES TO NET RETURNS FOR THREE CLASSES OF PROPERTY STUDIED IN THREE INDIANA COUNTIES *

Year	Rented Farms	Rented City Properties	Banks	Manufacturing Corporations
	Per Cent	Per Cent	Per Cent	Per Cent
1920	23.9	13.7	14.2	25.4 (a)
1921	41.5	19.0	20.6	
1922	47.5	22.6	26.3	
1923	39.6	19.8	24.5	
4 yr. average ...	38.0	18.8	21.4	

* U. S. Department of Agriculture, Bureau of Agricultural Economics, *Taxation of Farm Real Estate in Indiana*, March, 1925; also, by same authorship, *Taxation of Rented Farms in 1919*, March, 1925.

(a) Average for United States in 1922.

Economic justice and agricultural prosperity both indicate the need for a more prompt and equitable coördination of farm taxes and farm income.

Transportation of Farm Products.—The railroads and the farms are linked together in fundamental ways. The farms would be disastrously isolated from markets if transportation facilities were lacking. The railroads would lose a primary source of their revenue if agricultural products were not shipped over their lines. The products of agriculture are from 8 to 12 per cent of the total tonnage carried. The importance of agricultural transportation has steadily increased during the last quarter century. The tonnage of products shipped has increased about twice as fast as has the production of these products. Commodities are being shipped longer and longer distances, and freight is becoming an ever greater item of expense in the journey of products from farm to consumer.

Prices of things the farmer buys and of things the farmer sells are dependent upon freight changes. The price realized by a Kansas farmer for wheat sold in Chicago, is the Chicago wholesale price, less the freight from Kansas to Chicago. Farm prices are prices at terminal markets, less freight rates, farm to terminal. The deduction on account of freight varies with the nature of the product and the distance shipped. A survey of 9,476 cars of fruits and vegetables in 1920-1921 showed that the average freight deduction was 32 per cent of the wholesale price at terminal markets. Similar surveys of other products showed that freight equalled 14 to 45 per cent of the farm price of corn, 8 to 18 per cent of the farm price of wheat, and 3 to 12 per cent of the farm price of cotton.¹³ These illustrations are suggestive of the freight burden upon the farmer. Freight means a cost item amounting to from one-tenth to one-third of the value of farm products.

Prices of things the farmer buys are governed by the price at wholesale markets, plus freight to farm. In 1921, as much as 15½ per cent of the price charged the farmer for farm implements represented freight.¹⁴ The freight burden is passed on to the farmer, in so far as it lies within the power of retail distributors to pass it on. The ability to pass the burden on is, of course, limited by the marginal demand for retail products among farm buyers.

By the time farm products have reached consumers' hands, freight charges have become considerable. A material percentage of the consumer's dollar represents transportation cost. The table at the top of page 339 indicates for three important food items the fraction of the consumer's dollar assignable to transportation.

Wide variations are obvious, but underneath the variations the substantial burden of freight cost is clearly perceptible.

¹³ Part III, *Transportation*, Report of Joint Commission of Agricultural Inquiry, 1921, pp. 32 ff.

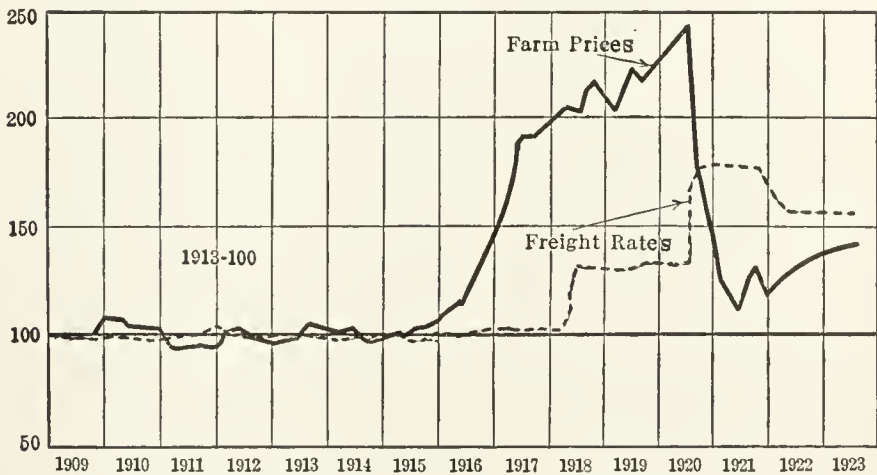
¹⁴ *Ibid.*, p. 156.

TRANSPORTATION COST IN THE DISTRIBUTION OF THE CONSUMER'S DOLLAR

Commodity	Per Cent Transportation is of Consumer's Dollar
Bread	2.6
Fresh beef	8.9
Corn flakes	15.0

Freight rates and farm prices bear important relations to each other. If freight rates are increased at a time when farm prices and farm income are falling, the burden upon the farmer becomes excessive. That this disparity between rates and prices may be severe is shown by the accompanying table.

RELATIONSHIP OF FARM PRICES AND FREIGHT RATES *



* *Year Book of the Department of Agriculture*, 1922, p. 3, and 1923, p. 7.

A parallel relationship is apparent until about 1914. Early in the World War, farm prices rose although freight rates were held down. This disparity stimulated farm prosperity, somewhat at the expense of the railroads. But beginning with 1920, freight rates were increased, although farm prices were falling precipitately. This disparity accentuated the depression and suffering of the farmer. The importance of an equitable and normal relationship between freight rates and farm prices is obvious. If farm freight is forced at any time to bear a disproportionate share of the cost of transportation, farm income suffers accordingly. The tendency toward convergence of rates and prices in 1923 indicates a reapproach to a more normal balance between transportation and agriculture. Agricultural prosperity is impossible without the foundation of sound transportation facilities at rates which are not oppressive.

Marketing of Farm Products.—Farmers as a group are firmly convinced that marketing of their products is wasteful and exploitative. Such statements as the following illustrate the situation according to the farmer's point of view:

It takes four and a half bushels of wheat to make a barrel of flour. When the wheat raiser was getting \$8.37 for the wheat, the miller got \$12.50 for the flour, the baker \$58.70 for the bread, and the hotel keeper selling the bread in slices in Washington received \$587.

A mutton chop in a New York hotel cost more than was paid for a sheep in Colorado or Kansas.

The farmer usually gets for his stuff about 30 per cent of the price which the consumer pays. The spread between the farmer and consumer will average about 70 cents of the consumer's dollar.¹⁵

To combat the wastes of distribution, a great variety of measures have been proposed. One measure of strong appeal is coöperative marketing. Coöperative societies aim to improve the methods of marketing. Grading, packing, sorting, shipping, are included in the educational program of such societies. They also aim to secure for the farmer a better price for his products. In striving for this end, they are rather narrowly restricted because of the fact that nothing which they can do can counterbalance fundamental conditions of supply and demand. The price gains which they can bring about are necessarily limited to a narrow range. Another measure is regulation of speculation on the commodity exchanges. At times, speculation is alleged to depress the price of produce; at other times, it is alleged to increase the price. Owing to agitation by farm groups, the grain exchanges have been subjected to regulation and control by the Federal Government. Still another measure is to insist upon increased efficiency and smaller margins of profit on the part of middlemen all along the line. Much publicity on efficiency and profits appears from time to time but the farm groups have no weapon capable of forcing the desired reforms. The soundness of their criticism is apparent, but the means of bringing about effective improvement have never been agreed upon by the responsible parties.

The urgent need for eliminating the wastes of distribution is commonly recognized. The ways and means of attaining this objective have been a subject of exhaustive investigation, but the response to suggestions and appeals has been extremely laggard on the part of the mass of distributors. This sluggish response is likely due not so much to wilful insistence upon wasteful distribution as to the inertia and momentum of established ways of doing business. The problem of efficient

¹⁵ Arthur Capper, *The Agricultural Bloc*, pp. 51, 80. A similar conclusion on the wastefulness of marketing is drawn from the following estimates: The farm value of crops in 1922 was \$7,500,000,000, deducting the value of animal products, cotton, and tobacco. For these products in final form consumers paid about \$22,500,000,000. The difference, or \$15,000,000,000 represents the cost of distribution. There are upwards of 4,000,000 food manufacturers and dealers in the United States, as compared with 6,500,000 farms. Each farm, in addition to supporting itself, must support three-fourths of a food dealer, middleman, or manufacturer.

marketing of farm products continues, therefore, to press for remedy and solution.

Agricultural Credit.—As agriculture has come more and more under the régime of business and the money economy, the importance of ample credit facilities has been impressed upon the minds of all persons concerned with the farm. Most farms are bought on long-term loans with mortgage security. Most farms are financed during the planting and harvesting seasons by short-term loans from the banks. The pecuniary problems of farming rest heavily upon the banking and credit resources which are made available.

Agriculture has two primary interests in the financing problem: one, to secure adequate loans on favorable terms, the other, to have general banking administration which will maintain reasonably steady prices and avoid inflation and deflation.

The ability to secure loans on favorable terms has been enhanced by numerous measures of federal legislation during recent years. Local and private sources of credit have been supplemented by an elaborate federal credit structure. To supply short-term credits, the Federal Reserve banks were authorized to rediscount agricultural paper having nine months to run. The maximum period for rediscountable commercial paper is only three months. The longer period for agricultural paper was required because farm loans require a longer period for liquidation than do ordinary commercial loans. To facilitate intermediate credits, Intermediate Credit Banks and National Agricultural Credit Associations were created. These institutions provide credits of from six months to three years duration. Coöperative marketing associations may sell their paper to these banks, and in turn relend the proceeds to their individual members. Rural banks which formerly could not join the Federal Reserve system on account of their small size have been encouraged to seek membership by more lenient capital requirements at time of entrance to the system. As members, they may still lend to farmers if their own credit is exhausted by the process of rediscounting with the federal institutions.

Long-term loans have been facilitated by two devices. One device has been to grant national banks the right to extend five-year loans on sound farm mortgage security. The second device has been the creation of special banking machinery for long-term loans. Federal Land Banks, National Farm Loan Associations, Joint-stock Land Banks, are the main institutions designed for this special purpose. They provide loans on mortgages for periods of five to thirty-six years.

The expansion of both long and short-term credit facilities through federal institutions has had the effect of insuring the farmer adequate credit under ordinary conditions, and of insuring reasonable interest rates. Local and private agencies for lending to farmers must compete with the federal agencies, and in order to do so, must keep their rates of interest approximately close to the level prevailing in federal agencies. If a shortage of funds for loans appears in any locality, it may be over-

come by rediscounting the paper of that locality in other regions where funds are plentiful.

But the amount of credit the farmer can secure is not the only important problem in agricultural finance. Equally important is the general credit policy pursued by the banks of the whole country and by the government. General credit policy governs the great movements of the price level. Rising prices, or inflation, may be induced by easy credit and over-expansion of currency. Falling prices, or deflation, may be induced by contraction of credit and currency. Inflation and deflation of prices vitally affect the weal or woe of the farmer. To take a recent illustration, from 1914 to the first months of 1920, the government, the Federal Reserve System, and the banks as a whole, expanded credit and currency. This expansion permitted a drastic increase in prices. Everything the farmer had to sell commanded good prices; and taxes, labor, and other costs lagged behind. But in 1920, credit stringency followed by contraction of credit and currency occurred. This contraction was accompanied by drastic deflation of prices. Then everything the farmer had to sell brought prices so low as to yield a net loss. Taxes were continued on inflated land values, labor and other costs had mounted, but the income of the farmer was destroyed by the price collapse. In a single year more than 1,000,000 people left the farms and upwards of one-tenth of the farmers went into bankruptcy, while more than an additional tenth were in fact bankrupt but still held their farms.¹⁶

It is to the advantage of the farmer to have these violent price fluctuations ironed out. Steadiness of prices with moderate prosperity is much better than an alternation between feverish prosperity with inflation and disastrous depression with deflation. The policy of the Federal Reserve Board and the Federal Reserve Banks is of paramount importance in attaining the desired goal. Their control of the official rediscount rate and their influence in open market transactions afford the opportunity to check inflation in season and to prevent beforehand the extremes of depression and deflation. Price movements are interlocked with money and credit movements, and both depend in fundamental ways upon the financial policies pursued in this country by the Federal Reserve system.

International Agricultural Relations.—Agriculture is international in character as regards both production and marketing. The farmer in Kansas may find his success or failure hinging upon what happens in Russia or Australia. The ancient notion that the farmer was ideally independent, and could live his life in splendid isolation and indifference has been thoroughly exploded. Extreme dependence upon foreign production and upon foreign markets is a cardinal characteristic of modern agriculture.

Supply is world supply and demand is world demand. The price of the wheat crop is settled by these worldwide factors. With respect to

¹⁶ See *Yearbook of Agriculture*, 1921, 1922, 1923.

any one crop, the world may be divided into two classes of countries. These classes may be termed surplus countries and deficit countries. The surplus countries produce more than enough for their own use and export the balance. The deficit countries produce less than enough for their own use and import the balance. Surplus countries are exporting countries; deficit countries are importing countries.

The United States has long been an exporter of wheat. Russia, Argentina, Canada, and other countries are also exporters of wheat. The price of United States wheat is dependent upon the supply exported by all surplus countries. It is often extremely difficult to know what the surplus of all countries is going to be, but the grain markets estimate and guess the amount as accurately as may be. International crop reporting agencies attempt to inform the grain markets of the actual and the probable international supply. Whatever affects the output of all other countries likewise affects the market for the output of the United States. International supply governs the situation.

On the marketing side, international demand is the dominating factor. The price of wheat in the United States depends upon the buying power and the demand of Europe for wheat products. If industry in Europe is prostrate, and people lack purchasing power, the market for American farm products is shattered. In the post-war period following 1918, the buying power of Europe was at first sustained by international loans. But when this recourse was exhausted, European industry was so burdened with political controversy, debt settlements, reparations payments, and military expenditure that buying power was stifled. The agricultural depression of 1920-1922 was accentuated by the collapse of European demand. By suffering and loss, American agriculture came to realize vividly its dependence upon international markets. Whatever cuts down foreign buying power cuts down by so much the demand for and the price of American farm products.

To cope with the international forces of supply and demand, numerous controlling devices have been attempted. The favorite device has long been the protective tariff, and protectionism has often been a part of the farmer's political orthodoxy. In more recent years, leading groups of farmers have taken a different stand. They have concluded that the protective tariff does not materially benefit the American farmer, but that on the contrary it injures him. In taking this new position, farm groups have fallen into line with the economic reasoning which has long prevailed among the great majority of economists. According to this reasoning, tariff duties do not raise the price of farm products of which an exportable surplus is produced in this country. For instance, a tariff on wheat or on pork cannot materially raise the price of the product in this country. The exportable surplus must be sold abroad in competition with the surpluses of other exporting countries. The price will be governed by world supply and demand. The price of the exportable surplus will be the price of the crop in domestic markets

as well. The price of the whole crop will correspond to the price of the exportable surplus. Wherever an exportable surplus is found in a country, protective duties cannot materially enhance prices.

Commodities which we produce in smaller amounts than we consume may command higher prices through tariff protection. Wool and sugar, for instance, are enhanced in price by import duties. But to secure this gain, agriculture takes heavy losses. The losses arise from the fact that most articles of manufacture are likewise protected. When the farmer buys his articles of consumption, he pays as part of the purchase price the tariff burden on those articles. Although the following estimate of the tariff burden is not vouched for as statistically accurate, it nevertheless is significant as an expression of careful opinion by a leading farm organization. The American Farm Bureau Federation estimated in 1923 that under the then existing tariff, farmers were paying \$426,000,000 a year in the form of higher prices on the things they bought, in order to gain \$125,000,000 of protection on everything they had to sell.

Realizing that the tariff has not enabled agriculture to raise prices as much as it has enabled other industries to do so, certain authorities have advocated schemes of *valorization* for farm products. Such schemes differ greatly in detail, but agree upon one basic principle. This principle is that an exportable surplus of any crop should be bought by government authority, so that domestic scarcity of supply will be severe enough to hold prices of farm products at a parity with prices of other products. An artificial and arbitrary control of domestic supply would be the means of guaranteeing that farm prices should not fall sharply below other prices. The exportable surplus would be dumped on the foreign market at whatever prices might be obtainable. The heart of this scheme is deliberate manipulation of the exportable surplus. Instead of leaving the size of this surplus to the whim of laissez faire under unbridled supply and demand, the size would be purposely dictated by the objective of maintaining a price balance for the benefit of agriculture.

From an economic standpoint, we may observe that such a regulated domestic scarcity would doubtless have the power to cause the desired price maintenance. If the political administration could be successful, an assumption which raises grave doubts, the weapon would be strong enough to hold up farm prices. But while making this concession, we must also observe that much greater and sounder advantage would result from greater moderation in tariff and valorization control all around. Valorization would put teeth into the tariff for the farmer. But still more would perhaps be gained if protection of manufacture were greatly lessened, and the whole scheme of restrictions, discriminations, and artificial manipulations were minimized. If we must have an extreme tariff for manufacture, then perhaps valorization of farm products is the only recourse to enable farm prices to maintain their proper balance.

Farm Management.—Positive advance has been made in all phases of modern management. Science in management has promoted efficient industry in all lines. Farm management has increased in efficiency

materially. Nevertheless, it must be noted that a very large part of agriculture is still grossly inefficient. The inefficiency is closely related with small scale management. There are about 6,500,000 farms in this country, and therefore about that number of separate farm managements. Manufacture has only about 200,000 establishments, and therefore only about that number of separate managements. The vast mass of individual managements in farming means that each manager in the majority of cases is at best a mediocre manager. Where such a multitude of small units is involved, it is tedious and slow in the extreme to inculcate the new and improved methods of farming. Between the average method and the best method there is a gulf of difference. How to educate the mass of small farmers to adopt intelligently the most effective methods is one of the baffling problems of agriculture. The agricultural schools, the experiment stations, and the progressive farmers are developing farm methods in this direction, but their efforts are restricted by the inertia of the 6,500,000 separate units of management which prevail in farming. Whatever hopes one may entertain for the future of agriculture, one must remember this limitation and obstacle.

Conclusion.—The problems which dominate modern agriculture are in large part an outgrowth of the tendency of agriculture to come more and more within the scope of the money economy. The canons and dictates of the pecuniary régime have penetrated farming, and color at every turn the progress and possibilities of that industry.

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CHAPTER XIX

WAGES OF LABOR

The Nature of Wages.—Wages present a problem in value and in distribution. The value problem relates to the value of labor. The distribution problem relates to the share of the product which goes to labor. The analysis of wages is a special application of the general principles of value which have been previously described. Supply and demand of labor are determining factors, and marginal units of utility and of productivity are involved.

Labor value is commonly expressed in the form of a price. Wage rates are prices of a special factor, labor. Hence wage analysis is a special case of the general theory of prices.

The term labor as used in this discussion refers to hired labor, remunerated either by wages or salaries. The remuneration to labor when a man works for himself is not included in the analysis, except where specially noted. Part of gross rent, part of gross interest, part of business profit, is a labor return. But these incidental labor returns are not involved directly in the present wage analysis. We are concerned here with the remuneration going *to labor in the employ of some one else*.

Labor includes mental as well as manual effort. Socialistic writers have often attempted to narrow the term to effort of hand and brawn, and to exclude the supervisory work of the capitalist from the category of labor. We may take, however, the broader conception which admits the work of management, direction, supervision, and execution to the labor classification. Intellectual labor is just as truly labor as muscular labor. Where the intellectual labor of management is rendered in return for a salary from the employer, the salary is similar to the wage of the manual worker.

The two basic forms of wage payment are *time* rates and *piece* rates. Time rates are rates of so much per hour, or per day, or per week. Piece rates are rates of so much per unit of product made by the worker. The more pieces a man makes, the more pay he receives. Numerous variations of these two basic forms of wage payment appear in business practice, but all such variations are fundamentally shaped by the characteristics of either time or piece rates.

Nominal wages are to be distinguished from *real* wages. The nominal wages are simply the amount of payment expressed in terms of money. Nominal wages are money wages. But real wages involve factors lying back of the money itself. Real wages may be viewed either from the viewpoint of the employer of labor or of the laborer himself as a con-

sumer. From the viewpoint of the employer, real wages are the *unit labor cost* of production. If two men working side by side draw one dollar an hour in wages, but one man produces twice as much as the other, obviously one man's labor is twice as expensive to the employer as the other. Real wages involve a twofold consideration: the nominal rate and the efficiency of the laborer. Both of these considerations are allowed for in the accountant's term, *labor cost per unit of product*. The accountant estimates the labor cost per pair of shoes, per ton of steel, per barrel of flour. Real wages to the employer are the real expense of production per unit of output. If we take the viewpoint of the laborer himself, in the capacity of consumer, real wages have reference to what the money wage will buy. Changes in the cost of living are constantly occurring. If the cost of living rises while money wages stand still, real wages actually fall. The purchasing power of the laborer's dollar is a basic factor in real wages. Real wages may mean either of two things, therefore, according to our point of view. From the employer's point of view, real wages are *labor cost per unit of product*. From the employee's point of view, real wages are *the amount of goods which the money wages will buy*.

As the technology of production has advanced, it has led more and more to specialization and minute division of labor. This specialization has generally involved a separation of the tasks of intellectual labor from the tasks of manual labor. Management takes upon its own shoulders the burdens of direction and supervision. Management assumes the responsibility of telling the laborer what to do. Management receives a salary. The labor which carries out the orders of management receives a wage. For this wage, labor is expected to perform certain services. In the modern factory, which is the dominant type of economic institution today, the distinguishing function of labor is the operation of machinery and the handling of material. This function of labor is performed under the direction and guidance of management. The material and machinery are the capital which is ultimately under the control of the owners. Labor's part in production is distinctly confined to the following out of plans, methods, and specifications under the guidance of powers higher up. It is not labor's function to decide whether new machinery shall be installed, or who shall own the machinery, or where the material shall come from or to whom the finished product shall be sold. Labor feeds raw material into the machine, lifts the levers and fingers the controls, takes the product away from the machine and either by hand or by the manipulation of further machinery transports the machine-made product to places where it can be used.

This restriction of labor's function was carried to an extreme in what has come to be known as Scientific Management. To quote F. W. Taylor, "In almost all the mechanic arts, the science which underlies each act of each workman is so great and amounts to so much that the workman who is best suited to actually doing the work is incapable of fully understanding this science without the guidance and help of those who are

working with him or over him, either through lack of education or through insufficient mental capacity." In the carrying out of this division of function, the part of management is to plan, to invent, to conceive new ways of doing things, to plot new arrangements of machinery, to devise the science of production from beginning to end. At the same time, the part of labor is unquestioning acceptance of the technology worked out by management. Labor's part is primarily muscular and only secondarily mental. Labor's part is to use the fingers, the hands, the arms, the eyes, the ears, in lifting, watching, pushing, pulling, carrying and handling. In many economic processes, this division of function is carried to such an extreme that the imagination and thought of labor is not only unnecessary but is apt to interfere with the efficient operation of the machine. In other processes, the mental tax upon the laborer is still considerable, but even in these cases, the broader, the more fundamental features of the science of production are designed and laid down for him by engineers and managers.

The mechanical processes which labor carries through involve endless repetition. The operation of the automatic machine requires that the laborer shall touch the same lever in the same way, at the same speed, several thousand times per day. Where the machinery has not become completely automatic, the repetitive motions which the laborer performs are the chief features of his part of the operation. The inevitable consequence of repetition is monotony. The incessant performance of the same motion day in and day out, thousands and tens of thousands of times, leaves scant room for variety, newness, imagination, or originality. The work becomes irksome, fatiguing, uninteresting, monotonous.¹

Under these conditions, labor involves a psychological cost to the laborer. The cost is the pain and boredom contained in the experience of the toil. Cost is equivalent to disutility of labor. To overcome this disutility, this pain-cost of labor, it is necessary to hold out to labor the hope of some ulterior reward. The ulterior reward serves as a motivation to labor. It is a stimulus and incentive to endure the pains of labor in order that later on, with the wages earned, the joys and pleasures of life may be purchased. The pleasure-gain of consumption is the prize dangling before the eyes of the laborer—the prize which sustains his forbearance and endurance in the workshop, the mill, and the mine. Pleasure-gain is the ulterior reward which induces the laborer to suffer pain-cost.

This statement of the usual theory of cost and gain rests upon a sound core of fact, although it implies in one respect a vicious conclusion. The core of fact is that a great deal of labor is unpleasant under modern working conditions. Probably the majority of labor is disagreeable and irksome. It would not be done for the love of the work. It will be done only if ulterior reward is in prospect. This core of fact is obvious to any one who has worked in a factory or mine, or to any one who has observed such work. But the vicious implication contained in the above

¹ See S. H. Slichter, *The Turnover of Factory Labor*, pp. 188-191.

theory is that labor is inherently and intrinsically repulsive. Theology at one time viewed labor as a curse visited upon man as a penalty for sin, and economics has often incorporated a similar thought in its doctrines on the pain-cost view of labor. But modern psychology has pretty well exploded this conception of labor as a curse. The psychological view is that labor is naturally active, creative, and industrious. Useful and constructive labor is required to satisfy the demands of human nature. Labor may be inherently and intrinsically pleasureable. It may be done for the pure joy of the work. The only reason why so much of modern labor is unpleasant is because factory institutions make of toil an offensive and repelling activity. The institutional environment of the worker is at fault. Man is not naturally lazy but naturally active and creative. If he seems at times to shun work, it is because the organization of his work is crude and hateful. If labor finds no joy in work itself, the fault is not in the human nature of the worker, but in the institutional surroundings under which his work is carried on. We must not, therefore, resign ourselves to the gloomy view that labor will always be as disagreeable as at present. We must not accept the notion that work is inevitably a grievous and ugly undertaking. Rather, we must stir ourselves to revise and reshape our institutional setting for labor to the end that more and more it may become spontaneous, creative, challenging.

Wages are not paid in proportion to the ugliness or joyfulness of work. The people who like their work the best are likely to receive the largest remuneration. The people who hate their work the most are likely to receive the lowest remuneration. In other words, the degree of pain-cost of labor is no measure of the degree of ulterior reward or pleasure-gain which must be held out as an incentive.

The Wage Share in Distribution.—The wage share in distribution may be considered in two aspects: first, the aggregate disbursement in wages as compared with the total national income in a given year; second, the variable rates of wages paid in different occupations and grades of labor.

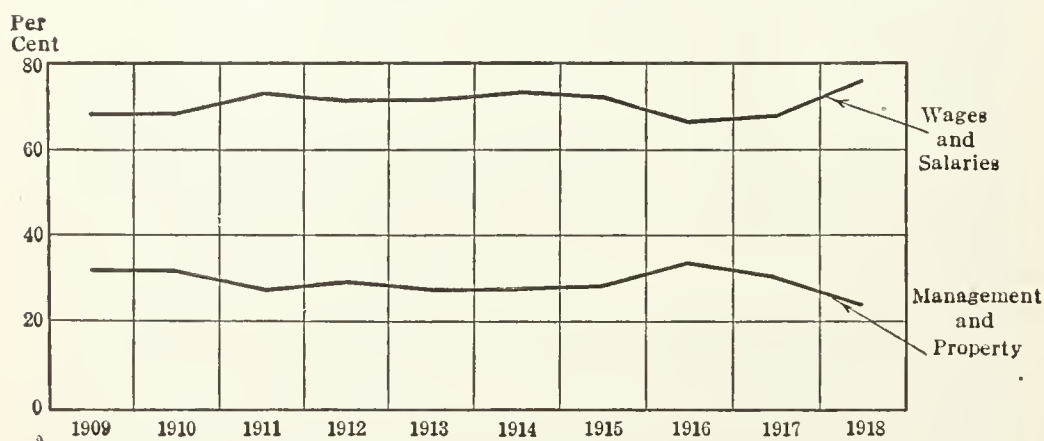
With regard to the aggregate wage disbursement, the estimate on page 350 by the National Bureau of Economic Research indicates the proportions of the net value product of mines, factories, and land transportation going to wages and to all other factors.²

Wages and salaries absorbed from 66.7 per cent to 77.3 per cent of the total. It is obvious that the share of wages varies materially from year to year. Labor's share was more than one-seventh greater in 1918 than in 1916, as compared with all other shares. The share of wages bulks larger than all other shares combined. Taking two-thirds to three-fourths of the net value product, wage earners absorb about twice as great a share of the total income as do land owners, capitalists, and property owners combined. Of course, per capita, the labor share is less

² *Income in the United States*, Volume I, p. 97, and data on p. 231 of present volume.

than that of other groups. We are here dealing with the grand totals of wage and non-wage incomes.

PERCENTAGES OF COMBINED NET VALUE PRODUCT OF MINES, FACTORIES, AND LAND TRANSPORTATION DISTRIBUTED AS EARNINGS OF EMPLOYEES, AND RETURNS FOR MANAGEMENT AND USE OF PROPERTY, RESPECTIVELY



With regard to the variable rates of wages paid in different occupations, the following estimate shows the variations in special branches of industry during the first quarter of 1922.

AVERAGE EARNINGS PER HOUR PER EMPLOYEE IN INDUSTRIES OF THE UNITED STATES (FIRST QUARTER OF 1922) *

Industry	Average Earnings in Cents per Hour
All Industries	0.51
Agriculture	0.20
Extraction of Minerals	0.71
Building and Construction	0.52
Other Hand Trades	0.75
Finance	0.75
Public and Professional Service	0.55
Domestic and Personal Service	0.33
All Transportation	0.61
Wholesale Trade	0.52
Retail Trade	0.47
All Factories	0.53
Food, Drink and Tobacco	0.46
Lumber and Its Products	0.48
Metals and Metal Products	0.54
Paper and Printing	0.64
Mineral Products	0.52
Textile and Leather Products	0.54

* W. I. King, National Bureau of Economic Research, *Employment, Hours, and Earnings in Prosperity and Depression*, p. 113.

The highest wage rates in this list are 250 per cent above the lowest. Striking inequalities of rates of pay are obvious when we move from one branch of industry to another.

Theories to Account for the Share of the National Income Going to Wage Earners.—(1) *The Subsistence Theory.* Ricardo, in a famous passage, says, "The natural price of labor is that price which is necessary to enable the laborers, one with another, to *subsist* and to perpetuate their race, without either increase or diminution." The doctrine thus expressed had been previously enunciated in various forms by the Physiocrats and by Adam Smith: Ricardo was, however, primarily influenced by Malthus in taking his position, for Malthus held that the tendency of human beings to multiply rapidly and to press upon the means of subsistence was the great law of population. Malthusian pessimism pervades the Ricardian theory of wages. What outlook could be more dismal than that labor must always tend to be reduced to the hard, cruel level of bare subsistence? Because of this type of pessimism, economies came to be called by its critics the "dismal science." Socialistic critics dubbed the Ricardian doctrine the "iron law of wages," and used Ricardo as authority for their contention that under capitalism the laborer had nothing to lose but his chains. Increasing misery loomed up on the horizon. The future was crusts and rags. There was no hope. This exaggeration of Ricardo's principle was not wholly warranted. Although he did emphasize subsistence as the natural wage, he recognized the possibility of progress in wage levels if certain changes were to take place. These changes might be in the "habits and customs of the people," in an "increase of capital," which occasions a "new demand for labor," and in restriction of population either by "some effort on the part of the legislature" or by "rendering less frequent early and improvident marriages." But even at best, Ricardo held out slight hope of improvement from these sources, and the dominant tone of his writing is pessimistic.

That Ricardo was wrong is evidenced by the fact that wage earners have materially increased their incomes since his day. The factors of which he was so skeptical have more than materialized. Insistence upon better standards of living has restricted population growth, and increases in capital and in technological efficiency have increased the national product. The subsistence theory of wages proved to be untenable.

(2) *The Wages-fund Theory.* John Stuart Mill laid down the following wage principle: "Wages depend mainly upon . . . the proportion between population and capital" or "between the number of the laboring class and the aggregate of what may be called the wages-fund, which consists of that part of circulating capital which is expended in the direct hire of labor." Just how the amount of circulating capital was to be determined was never clearly explained by the wages-fund theorists. If wages are a ratio between two things, population and circulating capital, we must know the size of the two things before we can express

the ratio. The doctrine was seized upon by enthusiastic adherents of the business viewpoint to prove that wages were a fixed quantity, incapable of increase by any methods whatsoever. In spite of all that trade unionists or socialists might hope to accomplish, one cold, ironic fact was said to stare the reformers in the face. This fact was that nothing which reformers could do would increase the wage fund. If labor in one section forced wages up, the artificial excess which was thereby squeezed out of the total fund meant that labor in another section would have its wages reduced by a corresponding amount. Labor as a whole could not benefit from unionism and strikes if the doctrine were true.

Mill was himself greatly influenced by the pessimism of Ricardo and Malthus. Although he had profound human sympathies and believed in the possibility of progress, we find him declaring in the most cynical tone, "It is questionable if all the mechanical inventions yet made have lightened the day's toil of any human being." Contemporary students made drastic criticisms of the wages-fund theory, and Mill eventually made a public recantation of his theory. The main positive contribution of the theory was to draw attention to the mutual interdependence of labor and capital. Wages are advanced out of capital. The laborer is paid before the products of his hands have been sold. Employers advance the pay. But since a time element enters into the calculation, the amount advanced to wage earners is reduced by the discount for the period. Wages may be viewed as the discounted product of labor.*

(3) *The Commodity Theory*.—A third theory is the commodity theory of wages. According to its teachings wages are subject to all of the market laws of supply and demand. The price paid to labor is fixed in the same way as the price paid for pig iron or coal. A large supply of labor relative to the demand leads to a low wage and a low supply of labor relative to demand leads to a high wage. Labor is looked upon as a thing to be bought and sold in the same fashion as any other commodity. Labor has long smarted at the humiliating inference of the theory, and organized labor in 1916 secured the passage of a law by Congress declaring that labor should henceforth not be considered a commodity or an article of commerce. Experience since that time has indicated that the passage of a congressional statute does not alter the attitude of employers towards employees, nor prevent them from still hiring labor at as low a figure as the market will bear. A number of features of the commodity theory are important. It considers labor as a collection of individual units, but fails to consider the changed marketing power of labor as an organized group. A million men in the labor market as individuals might find their wages fixed by arbitrary forces of supply and demand, but the same million laborers organized into a powerful labor union might be able, as experience has abundantly shown, to raise the wage level considerably above the old market figure. In practice the effort of employers to consider labor as an article of commerce has amounted to an attempt for the most part to secure the maximum of

work for the minimum of wages. Labor has widely matched the attitude of the employers by determination to give the minimum of work for the maximum of wages. The laborer when looked upon as a commodity has come to feel that so far as wages are concerned he "gets what he can," whereas the employer has come to feel that the laborer after all "gets just what he deserves." The commodity theory of labor, therefore, leads to unwholesome and embittered feelings in the industrial world. It takes little account of the need of the workers to live, and reckons as of little importance the higher elements of the human factor in industry.

(4) *Socialistic Wage Theory.* Karl Marx borrowed largely from the subsistence theory of wages in expounding his own wage theory. The *Communist Manifesto* declared: "The average price of wage-labor is the minimum wage, i.e., that quantum of the means of subsistence which is absolutely requisite to keep the laborer in bare existence as a laborer. What, therefore, the wage-laborer appropriates by means of his labor merely suffices to prolong and reproduce a bare existence. We by no means intend to abolish this personal appropriation of the products of labor, an appropriation that is made for the maintenance and reproduction of human life, and that leaves no surplus wherewith to command the labor of others. All that we want to do away with is the miserable character of this appropriation under which the laborer lives merely to increase capital, and is allowed to live only in so far as the interest of the ruling class requires it." In his treatise on *Capital*, Marx built up an intricate theory of the hopeless struggle of labor for a better wage. He held that capital would always hire labor at the lowest possible wage. And this lowest possible wage would be merely the amount necessary to prevent present laborers from starving and to enable them to reproduce their kind for the future. Cost of labor was viewed as the cost of reproducing work animals. These human work animals would be paid by capital only enough to provide their crude and miserable existence. But the value of their product would be much above their existence price. This excess he termed surplus value. The return gained by capital was produced by labor and justly belonged to labor, but was stolen by capital. Unrequited labor, or stolen wages, were regarded as the source of the exploitation of which capitalists were accused.

Orthodox economics of the present day does not accept the Marxian doctrine. That doctrine erred in attributing to labor the sole and exclusive quality of productivity. Modern economics considers that land and capital as well as labor are entitled to productive shares.

Marginal Elements in Wage Determination.—The following account of marginal theory is probably the general line of reasoning most commonly accepted among present day economic authorities. It is an outgrowth of the good and bad features of the theories which preceded. Earlier theories suffered sharp critical attacks and many parts were chopped away while certain parts survived the attacks and merged themselves with the final marginal theory of wages. We cannot in this treatise give detailed analysis of the strong and weak points of these

earlier theories. It is sufficient to make clear the fact that the theory of today is an outgrowth and development of earlier theories. Doubtless this marginal theory will prove but a stepping-stone to a more useful and penetrating wage analysis in a later period. Indeed, severe assaults have already been made upon marginal principles, and many authorities believe that they are already in a process of disintegration.

Marginal theory involves an application of the marginal concept to various factors in the wage contract. First, we may apply it to the laborers themselves. Marginal laborers tend to set the price below which wages cannot fall for all laborers. Marginal laborers may be viewed either as *the least willing* or as *the least effective laborers*. In all branches of industry are found laborers who are barely persuaded to stay in the industry by the wage rate they receive. If any further cut were made, these dissatisfied, reluctant, marginal laborers would detach themselves from the industry. Wage cuts drive out marginal laborers, and at the lowered rates, laborers who are marginal at lower levels appear. Willingness to work at a certain rate is one thing; ability to work effectively is quite another thing. Everybody is willing to work in jobs paying the most money and operating under most attractive conditions. But only a limited few are capable and qualified. The workers in any grade or occupation may be divided into descending scales of excellent, good, fair, mediocre, poor, and useless. The wage rate of the group will not be based upon the efficiency of the excellent, but upon the efficiency of the fair, mediocre, or even the poor. The least effective workers in the factory, the mill, and the mine tend to set the wage which must necessarily be paid to the more effective workers. Marginal workers are the least effective and the least willing workers in any trade and in all trades.

It should be noted carefully that the point where marginality falls depends closely upon the scarcity or plenty of laborers. If a huge supply of laborers is present, because of immigration or high birth rate, then the marginal laborer will be one who cannot afford to be unwilling to take almost any wage offered him. The marginal point may then be battered down to the bare level of subsistence. If labor supply is restricted, the scarcity of laborers will enable the least willing and least effective workers to hold out for high rates of pay. The marginal factor is fundamentally a scarcity factor. Marginal elements are supply elements. How far down the scale we will find the least effective and least willing laborers depends upon the supply of laborers at the given time and place. Scarcity is a basic governing factor in marginality of labor.

Secondly, the marginal principle applies to the status of the entrepreneur or employer. The marginal employer may be viewed both as the *least willing* employer and the *least effective* employer. In general, the least willing employers are those who expect to gain least from employing labor. They are least willing because they are least successful in making a profit. They are least willing to pay a given rate to labor because they can least afford to pay a given rate. In other words they

are least willing because they are least effective. Employers who just barely cover expenses are the employers who represent the wage rate which all employers must pay. More successful employers could afford to pay more, but they do not have to, since the marginal employers influence the wages of all employers. The marginal producer is the producer at whose hands wage rates are fixed. What he is able to pay is the high point in wage rates. Beyond that point it is unnecessary for better employers to go.

Marginal employees and marginal employers represent the battle lines where wage rates are won and lost. If wages are cut too low, marginal employees will quit the employment. If wages are forced too high, marginal employers will be driven out of business. These marginal factors cannot be adequately interpreted, however, without introducing a third marginal factor, namely, *marginal productivity*. The product of labor has a fundamental influence upon the price paid for labor.

The marginal productivity of labor is the productivity of the least effective units of labor in each given employment. The lowest units of labor add the least product. Any employer finds all degrees of efficiency among each kind of his employees. Let us assume that he grades each kind in the scale of their individual efficiency from highest to lowest. *The productivity of each man in the scale is what the employer would lose by not employing him.* Or we may say that the productivity of each man is what he adds to the product of the establishment. His product is the amount by which he can increase the output for the employer. The test of what each workman adds to product is what would be lost to product by his withdrawal from the work. If we take away one unit of labor, what diminution of product occurs? If we add one unit of labor, what increment of product occurs? The answers to these questions are the tests of the productivity of each unit of labor. Now, as we go down the scale of decreasing efficiency, we find that successive laborers turn out less and less additional product. And eventually we come to those units of labor whose product is barely enough to cover the expenses of turning out the product. When labor productivity is so low that product equals cost, and net gains are zero, the point of marginal productivity has been reached.

Any further employment of labor would then result in a net loss to the employer. Any less employment of labor would mean that the employer was not making the largest gain possible. Employers will tend to employ successive units of labor, even though efficiency is decreasing, until the point is reached where labor productivity is barely sufficient to cover expense. This tendency is only a tendency. It is at best imperfectly realized. It requires an assumed state of free and perfect competition. It is hypothetical. But as a tendency, nevertheless, it serves to fasten attention upon a fundamental force which is operative in wage determination. It emphasizes the direction in which a major influence is moving. Marginal productivity is the goal and resting point toward which wages tend in each plant, each branch of industry,

and in each national organization of industry taken as a whole. Every employer will seek to employ additional labor as long as it adds more value to the product than the cost of the labor. As long as the employer gets more for the product than he pays for it by adding more labor it is to his advantage to increase the labor factor. The marginal product of labor will be the dividing line beyond which no profit can be made from additional employment of labor.

The rate which is warranted by the marginal product of labor is also the rate which is paid to all laborers in the same group. In discussing the value of commodities, we emphasized the fact that marginal utility sets the price of all units. All buyers get the commodity for the price which the marginal buyer is willing to pay. Likewise in the case of labor, the wage which is put upon the labor producing marginal product is the wage for all labor in the same group. The marginal rate is the standard rate. Each unit of labor is worth to the employer what the last unit produces.³ This is in accord with the law of one price in one market. The law of one price has already been explained with reference to the price of commodities, and it may now be applied to the price of labor. The first units of labor, although more productive if they alone were used, bring the same pay as the last units of labor in the group. First units, middle units, all units in the group are priced at the same rate as the last or marginal units. Uniformity of wages at the level of marginal product for all laborers doing the same kind of work is the essence of the process of wage fixing.

The marginal principle is difficult to visualize with labor as a lump mass, but it is easy to visualize when labor is viewed in different grades. At the bottom of the labor scale is common labor of the humblest kind. At the top of the labor scale are high salaried managers and professional men. Between these lower and upper extremes are all grades and degrees of superior common labor, semi-skilled labor, and highly skilled labor. The men in the topmost grade receive high pay. But the least willing and least effective workers in that grade are on the borderline between staying in and getting out. They are at the *margin of indifference* between that grade and the next lower grade of labor. Some will be driven below the margin of indifference into the grade of highly skilled

³ It should be noted that even though the successive units of labor be equal in willingness to work and ability to work, their product will not necessarily be the same. As successive units of labor of the same strength and intelligence are drawn into use, the additions of effort will gradually yield less and less product. Decreasing productivity of additional units of labor effort may be due to diminishing returns because of size of management or limitation of other factors. But more especially decreasing productivity of additional units of effort may be due to the fact that the added supply of the product may so alter the relation between supply and demand as to depress the price and exchange value severely. Additional units of effort yield increased total supply. Increased supply tends to depress prices. As the price of the product falls, the product of each additional unit of labor is worth less and less. The fall in the value of additional product is not due to any slackening in effort on the part of the laborer. He may be working harder than ever before, but his additional product will be worth less and less because increased supply has brought prices down.

workmen, of foremen, and the like. These workmen will be individuals who could not add sufficient product in the topmost grade to warrant their retention in that grade. But in the next lower grade, a similar development will also be taking place. Some of the skilled workmen will be ineffective and unwilling. They will not be able to add enough product to warrant their retention in that grade. Hence, they will be found at the borderline, or *margin of indifference*, for that grade. But as the sub-marginal skilled workers are driven out of the skilled grade, they will pass down into semi-skilled or unskilled grades. And there again will be found workmen at the margin of indifference. And finally will come the margin of indifference of the lowest grade of common labor. Now, men who are on the margin of indifference here have only the alternative of quitting work altogether. There is no other task to which they can turn their hands. If wages are cut so low as to drive them out of their jobs, they may emigrate from the country, or join the ranks of the unemployed, or restrict the size of their families, or die off, or start a revolution, or organize a labor union. But in any event, they are sub-marginal even for the lowest grade of labor. Their added product, if employed, would not be enough to cover the added cost of employing them.

These grades of labor have been termed "non-competing" groups. In a broad and general sense, they are non-competing. The common laborer does not compete with the manager for the same position. The unskilled does not compete with the skilled. Members within each group compete with each other, but the group as a whole does not compete with other groups as a whole.

The inability to compete, moreover, shows a pronounced tendency to persist. Even if wages in higher groups become very lucrative, it is with exceeding sluggishness that lower groups qualify themselves for the higher work in order to obtain the higher pay. The higher groups remain higher and the lower groups remain lower. The economist expresses this sluggish tendency by stating that labor groups are highly *immobile*. Their inertia by groups is *immobility*. If demand for labor in one group becomes intense, nevertheless the inertia of the lower groups will slow up the tendency for the new demand higher up to be satisfied. The immobility of non-competing groups accounts in large measure for the *differences* of wages between the groups. If members of one group could pass over with utmost ease into the ranks of a higher group, wages would be equalized throughout all occupations. But differences of wages persist, and the reason for their persistence is the immobility of the non-competing grades of labor.

We may ask, furthermore, why the grades show this quality of immobility? In part, the reason lies in *differences of inborn abilities*. Native capacity differs sharply as between the brilliant executive and the sodden laborer, between the sensitive skill of the mechanic and the crude ignorance of the lowest classes of labor. The inequality of inborn capacities is inferred by scientific tests of intellectual, emotional, and

physiæal qualities as well as by common observation. Only the rare individual shows the natural qualities which make for the highest success. But in part, the reason lies beyond native capacities. It lies in the stratification of *opportunity* which appears in society. The children of the common laborer's family are likely to be put to work at an early age, to be denied an education, to be exposed to a social environment which kills ambition and stifles aspiration. The children of the higher grades of workers have every opportunity to make the most of their talents. They are encouraged, inspired, educated. Doubtless the lower grades of labor possess an immense store of untapped ability. Their latent capacities have never been released because their economic and social environment has never been favorable. The smouldering and dormant powers in the common man are doubtless very great, but social stratification makes the release of these powers very slow and tedious indeed.

We may add a third factor to the two that have already been mentioned as accounting for differences in wages. *In addition to inequalities in inborn abilities and inequalities in opportunity and environment, we may mention inequalities in scarcity of the given grades of population.* The higher grades of labor show the smallest birth rate. They have small families. Consequently, there is a marked scarcity of the children of the high paid grades of labor. Population restriction limits labor supply in those grades, and enables them to keep wages up. Contrast with this the condition of the families of low paid workers. High birth rates, large families, over-supply of low paid labor, is the sequence of events. Population multiplies, and scarcity of labor is destroyed. When scarcity is undermined, wage rates are undermined. Inequalities of birth rate and family increase are fully as important as inequalities of native ability or of social opportunity. These inequalities among the grades and groups of labor largely account for the inequalities in wages paid the various groups. Speaking in marginal terms, these underlying factors determine the marginal product of labor in the given groups and grades. Marginal product, as previously explained, determines the wage rate for each kind of labor.

Inequalities of native ability, of social opportunity, of family increase, account for inequalities in marginal productivity, which in turn govern the inequalities of wage rates among the various groups.

The Dependence of Wages upon the Other Factors in Production.—

The productivity of labor depends upon the use made of the other factors in production. Labor well supplied with efficient capital can produce much more than labor with scant capital. Not only the amount of capital but the technological quality of the capital influences the product which will be made from a unit of labor. The marginal product of labor tends to be highest when a good quantity of the best capital is available for use. Likewise, labor productivity depends upon the land factor in production. The same labor performed upon two different land areas, the one fertile, the other inferior, will result in sharply

different amounts of products. In countries where the population is not congested and where the soil is rich, the marginal product of labor tends to be high. In countries of congested population, and mediocre land, the marginal product of the laborers on the soil tends to be low.

Some authorities have maintained that each factor in production yields a separate and *specific product*. It should be apparent however that the product of labor is not wholly separate from the products of other factors, but decidedly dependent upon those factors. The marginal product of labor will be no higher than the capital and land factors in production will permit. The product of labor is the resultant of labor and the other factors in production. And since the amount and character of the land and capital elements may sharply raise or lower the product resulting from the effort of labor, the product is not separate and specific to labor, but is general and relative to the coöperating factors in production.

The rôles of the other factors may be viewed in marginal terms. The last units of capital employed are marginal units and likewise the last units of land employed. The marginal product of capital or of land is the product of the last units used. If the marginal products of these factors are high, the marginal product of labor will tend to be high. The best land and the best capital being used, the best results of labor may be expected. The marginal products of land and of capital condition the marginal product of labor, which in turn shapes the wage rates for all laborers of a given kind. The relationships between the factors in production are coöperative, not independent and separate. The marginal productivity of the labor factor is vitally dependent upon the marginal productivity of all other factors in production.

The Value of Labor Derived from the Value of its Products.—The ultimate forces governing labor value must be looked for in the value of the commodities produced by labor. Why can the manufacturer pay good wages? Because consumers attach high marginal utility to the goods manufactured. Why can retail stores pay given rates of wages? Because consumers stand ready to buy given quantities of goods at given prices. The value of labor arises from the value of the products of labor.

This version of derived labor value may be compared with the doctrine that the value of capital or of land is derived from the value of the products turned out by capital and land. Capital goods are high in price when producers expect to be able to sell large quantities of finished products to consumers at high prices. Iron and steel prices depend upon automobile prices. Cotton prices depend upon cloth prices. Lumber prices depend upon furniture prices. The prices of consumer's goods are the origin, source, and fountain of value, and all agents in production derive the value of their marginal units from the value of the finished things produced.

In marginal terminology, we may say that *the marginal productivity of labor depends upon the marginal utility of the products of labor*. The

wage received by the least effective worker depends upon the price that can be obtained for his product from the least willing buyer. The wage which the least effective employer can afford to pay depends upon the price which he expects to realize on the products from the least willing consumers. The marginal wage depends upon the marginal utility of the things made by the wage laborer. The marginal productivity of labor is *derived* from the marginal utility of the results of labor.

With these factors in mind, it is readily seen that the word, "productivity," is used in a very special sense. Unless this special sense is clearly perceived, the student will see nothing more to the marginal productivity theory of wages than the circular law that a man gets what he earns and earns what he gets. When we state that the laborer receives a wage which is governed by his marginal productivity, we mean his productivity of exchange-value. Productivity must be taken in the pecuniary sense, as a price term.

Let us assume an illustration. The marginal product of an energetic, intelligent, hard working laborer in a field where labor is scarce, where capital is inferior, where land location is poor will be assumed to be one pair of shoes in one day of labor. In another community, the marginal product of a lazy, ignorant, easy-going laborer in a field where labor is plenty, where capital is the best, where land location is ideal will be assumed to be one pair of shoes in one day of labor. Now, in a physical sense, the product is identical. The fine laborer and the despicable laborer produced the same physical product. All this is purely physical. But turn to the exchange-value aspect of the case. In the former community, where labor scarcity limits the quantity of shoes, and where marginal utility of shoes is high, the pair of shoes will be sold for \$10.00. But in the latter community, where labor plenty expands the quantity of shoes and where marginal utility of shoes is low, the pair of shoes will be sold for \$5.00.

What is the marginal product of the laborer? In the physical sense of terms, it is one pair of shoes in each case. But in the money economy, pecuniary terms prevail. There the marginal product of labor depends upon the money price of things, the exchange value of the product. We may assume that the former worker earns a wage of \$8.00 a day, whereas the latter worker earns a wage of only \$4.00 a day. Then, the marginal productivity of the first man's labor is \$8.00 and the marginal productivity of the last man's labor is only \$4.00. In physical terms, the result of the labor is identical, but in pecuniary terms, the result in one case is double that in the other.

Let us assume another case. Two laborers of equal brain and brawn work in two different branches of enterprise. They toil equally hard. They work equally long. Will it follow that they receive equal pay? Not at all. Productivity is not the same as effort. It is not the same as honest endeavor. It is not the same as hard work. Productivity is the making of exchange values. No matter if two laborers work equally hard in their respective fields, if the product of one laborer will sell in

the commodity markets for twice what the product of the other will bring, the productivity of the first laborer is double that of the second. Productivity refers only incidentally to goods; it refers primarily to price gains expected from the sale of the goods. The increment of price resulting from labor is the sole economic measure of the productivity of labor.

The theory of productivity must be revamped to suit the vocabulary of the money economy. People generally attach some element of service to productivity. The term implies for them definite ethical or moral values. They think of some spiritual desert. They are talking of some abstract form of justice. But all that is irrelevant in our economic analysis. The gain falls from heaven alike upon the just and upon the unjust. Fortune smiles equally upon those marginal producers who are turning out pink pills, spurious patent medicines, or the bread of life. Desert is rewarded not in proportion to the ethical worth of the worker nor to the sweat of his brow, but to the exchange-value of the lifeless matter which he turns out. Productivity is pecuniary. The marginal producer makes dollars, and only incidentally goods. Productivity of money gain is the thing itself. In the money economy this is the acid test of productivity,—there is no other,—the popular conceptions of service and reward therefor to the contrary notwithstanding.

But all this must not be allowed to take on the cast of sordidness. From a social standpoint we may check up on money productivity. We may inquire to what extent pecuniary productivity results in social productivity. At times and places the two coincide. At times and places pecuniary productivity yields a modicum of social gain and a mountain of private gain. At times and places, pecuniary productivity yields social exploitation and misery, and private riches unbounded.

Although we may apply the social check as drastically as we please, the fact remains that productivity in the business world is a purely pecuniary concept. Productivity depends not upon the human worth of the goods for health and happiness and character, but upon the saleability of the goods as determined by the drives of advertisers and salesmen to break down consumer resistance. Productivity depends not upon tons, bushels, and yards turned out but upon dollars taken in. Productivity depends not upon mere effort and earnestness and all the virtues of the calendar, but also upon the scarcity of labor, the scarcity of the goods produced, the intensity of the demand. Productivity is great where scarcity is great and slight when scarcity is wanting. Effort, ability, endeavor, may remain the same on the part of labor, but scarcity will do more to give the laborer a big share of the product than all the fine virtues in the world. Productivity of exchange-value is the concept to which we must return, from whatever angle we approach the problem.

Conclusion.—The share of labor, like the share of other agents of production, is determined by the marginal product of the agent, product being used not in the physical but in the pecuniary sense.

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CHAPTER XX

WAGE CONDITIONS AND PROBLEMS

Proportional Importance of Labor and Other Factors.—The factors in production may be combined in any number of different proportions. But in each plant and each industry, some one proportion will be found to give the largest profit. This proportion is the one which business men will tend to adopt. The proportionality of factors of production requires that land, labor, capital, and management be in the most advantageous relations with each other. In one industry, the main cost of production will be wages. In another, it will be land. In another it will be capital. This variety of proportions is found in wide range as one moves from trade to trade over the nation's economic life. The variations may be illustrated by a graphic account of the practice in a selected list of industries. The diagrams on page 364 show the percentages of total value of manufactured products represented by wages as contrasted with other factors. Cost of materials includes labor and capital costs in the earlier stages of production, such as mining, where materials are being prepared for the manufacturing stage. After wages and cost of materials have been met, the balance of the total value of products represents interest, dividends, rents, taxes, selling expenses, etc.

The first diagram, dealing with all manufacture, shows that wages come below materials as a major item of cost, but are nearly equal to the balance of all other agents in production. Moreover, the relative wage cost in all manufacture has remained fairly constant from 1899 to 1923. Over a period of twenty-four years, wages absorbed less than 20 per cent of the cost of the manufactured products.

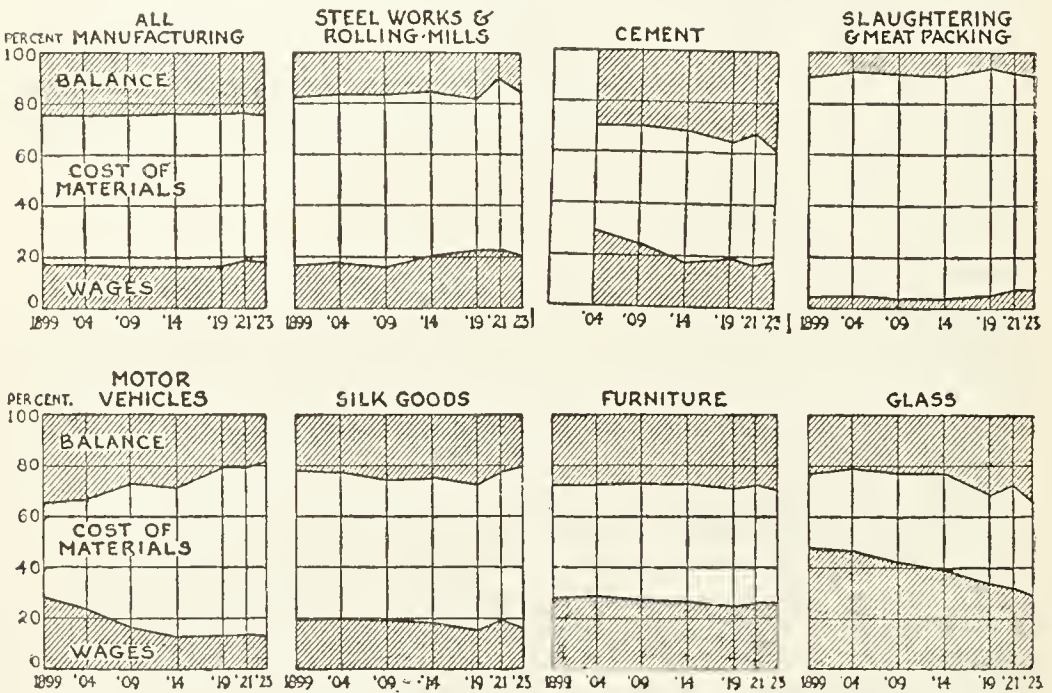
The average distribution does not, however, hold for the individual industries. In furniture, glass and steel, wages are a more important fraction of total product. But in slaughtering and meat packing, the labor share is very small, amounting to less than 10 per cent of the total value of products.

Not only are the differences between industries obvious, but also the differences in the same individual industry from year to year. In steel and meat packing, the labor share increased during the period, but in cement, glass, and motor vehicles, it decreased. In the latter industries, the introduction of machinery led to a reduction in the importance of the labor factor. The importance of machine capital was enhanced and the importance of labor power diminished. The diagrams are sufficient to emphasize variability in the proportioning of the factors in production. The marginal productivity of labor is reached in some industries

by paying to labor less than 10 per cent of the value of the product, but in other industries is reached only by paying to labor 30 per cent or more of the product.

The problem of proportioning the factors in each plant and in each industry is a most important one. The entrepreneur must calculate the result of a little more of this factor, a little less of that factor. He must ascertain the gain or loss from adding to labor and deducting from capital expense. His strategy of combining the agents of production is indispensable to his success as a business manager.

PERCENTAGES OF TOTAL VALUE OF MANUFACTURED PRODUCTS REPRESENTED BY WAGES, COST OF MATERIALS, AND OTHER FACTORS *



* The graphs are obtained from estimates made at five-year intervals by the United States Bureau of the Census. The graphs are as prepared by the *Monthly Review* of the Federal Reserve Bank of New York for April 1, 1925.

The Trend of Real Wage Income.—The laborer views his welfare from the standpoint of the increase or decrease in what his wages will buy. If his wage is increased 10 per cent but prices of everything he buys are increased 20 per cent, obviously the laborer loses rather than gains. The laborer is anxious to have as much money as possible and to have each dollar of his money buy as many commodities as possible. As his real income increases, he can raise his standard of living. He can enjoy more of the comforts and luxuries of life. He can give his children better educational opportunities. He can maintain a better home. The rays of hope brighten as real wages increase. The pall of discouragement descends as real wages decrease.

The real wages of labor, based upon daily and weekly earnings, have been estimated as follows for a period of nearly three-quarters of a century:

ESTIMATED REAL WAGES, 1820-1890 *
(1913 = 100)

Years	Index
1820-9	46
1830-9	48
1840-9	56
1850-9	52
1860-9	53
1870-9	77
1880-9	85
1890-9	103

* See A. H. Hansen, *American Economic Review*, Volume XV, p. 33.

These estimates reveal a marked increase over a period of seventy years. Wages more than doubled in purchasing power over commodities. Yet this increase was uneven and unsteady. The decade before the Civil War was a period of falling real wages. The decades immediately following the Civil War show a rapid rise of real wages. The progress of labor was unsteady and uneven.

The trend of real wages from 1890 to 1918, as found in ten major industries, was downward. Douglas estimates real wages in this period as follows:¹

PURCHASING POWER OF FULL-TIME WEEKLY EARNINGS
(1890-9 = 100)

Year	Index of Real Wages	Year	Index of Real Wages
1890	98.4	1905	98.3
1891	96.8	1906	98.6
1892	99.3	1907	98.2
1893	97.5	1908	94.6
1894	98.7	1909	90.7
1895	101.2	1910	87.8
1896	104.6	1911	90.1
1897	103.2	1912	85.9
1898	100.5	1913	86.8
1899	100.8	1914	87.0
1900	101.6	1915	86.6
1901	97.6	1916	80.8
1902	95.1	1917	64.0
1903	97.6	1918	70.4
1904	96.9		

¹ See Paul H. Douglas and Frances Lamberson, *American Economic Review*, Volume XI, pp. 409-426.

Real wages fell off in these industries nearly 30 per cent. The particular industries studied may not be representative of all economic activity, but it is believed that even though the selected lines exaggerate the general decline, nevertheless they do not err in emphasizing that a decline actually did occur.

The data are brought down through the post-war period by the following table:

INDEXES OF REAL WAGES IN THE UNITED STATES *
(1890-9 = 100)

Year	Purchasing Power of an Hour's Wage	Real Full-time Weekly Wages
1890-9	100	100
1918	88	..
1919	83	83
1920	100	89
1921	115	93
1922	117	91
1923	110	95

* See Paul H. Douglas, *Proceedings of the Academy of Political Science*, Volume XI, p. 95. The hourly wages are drawn from sixteen manufacturing industries; the weekly wages from eight different groups of industries. Certain discrepancies appear between the findings of Hansen in the previous table and those of Douglas in the present table. These are due to different selections of data and of statistical method.

These figures do not allow for unemployment during part of the year. Unemployment would make yearly earnings less than weekly earnings in the rate of increase or decrease. But these figures are sufficient to indicate that although hourly real wages increased, nevertheless the movement for shorter hours more than offset the increase and real weekly wages declined. The actual income of the laborer appears to have decreased. Certain individual lines may have gained but labor as a whole seems to have suffered a loss in real income.

The increases in some lines and the decreases in others are a measure of the unequal progress of wage earners. Some are bettering themselves while others are suffering severe losses. These inequalities are represented by the indexes of the table on page 367.

Contrast the severe decline in real wages of government employees, unskilled labor, printing, and other trades with the increase in real wages of bakers, textile manufacturers, and bituminous coal miners. It is also interesting to note that the union trades as a whole lost, while several non-union trades gained. It must be clear from these figures that labor cannot count upon any definite size of wage as a matter of economic justice. Abstract justice does not govern the wage distribution between industries under the modern régime. The force of marginal productivity may be drawn upon to explain the variations. In each case, we can say that marginal productivity governed the inequality of

change. But at best, that answer leaves an important question untouched. The vital question would seem to be: What forces have caused the changes in marginal productivity? If marginal product determines wages, what determines marginal product? In reply to this question, we have to fall back upon the scarcity of labor relatively to the marginal utility of the product of labor. Scarcity plus utility, i.e., supply and demand, are the factors which fix the point of marginal productivity in each particular line. Hence, in any given case, our method for explaining the gain or loss of wages is to analyze the supply of labor in the particular trade and the demand for the product on the part of consumers.

VARIATIONS IN TRENDS OF WAGE RATES *

Industry	Purchasing Power, in 1923, of Full-time Weekly Earnings (1890-99 = 100)
1. Union Trades (as a whole)	95
(a) Foundry and Machine Shop	87
(b) Building Trades	100
(c) Marble and Stone Work	93
(d) Printing (Book and Job)	99
(e) Printing (Newspaper)	78
(f) Millwork	98
(g) Bakers	121
2. Other Manufacturing Industries:	
(a) Woolen Goods	116
(b) Cotton Goods	114
(c) Boots and Shoes	88
(d) Hosiery and Knit Goods	102
(e) Men's Clothing	123
(f) Lumber (1923)	80
(g) Slaughtering and Meat Packing (1923)	83
3. Farm Labor	83
4. Unskilled Labor	80
5. Railway Labor	97
6. Seamen	77
7. Anthracite Mining	97
8. Bituminous Mining	139
9. Teachers	101
10. Ministers	78
11. Government Employees (1921)	53
12. Postal Employees	74

* Paul H. Douglas, *Proceedings of the Academy of Political Science*, Volume XI, p. 97.

It is small wonder that the workman feels bewildered and frustrated by the economic order. He may see his own wages dwindle in purchasing power. He may be forced to give up many enjoyments and advantages. And at the same time, he may see his neighbor workman leap ahead in wage income, and command luxuries and pleasures denied himself. With no change in their respective abilities, with no change

in their effort as workmen, with no change in their physical efficiency, their relative pecuniary position undergoes a violent shift. Fortunate is the workman who is employed in a trade where labor is scarce and where the marginal buyers pay high prices for the product. If the scarcity of labor of the given kind is maintained and if the product is in high demand among consumers, the value of productivity of labor will be high.

Real Wages Compared with Production.—Two series of phenomena should be compared, namely, the trend of real wages and the trend of physical production. Real wages have been defined as the actual power of the wage to buy commodities. The real wage is the laborer's share of the tangible commodities annually produced by the nation. It must be obvious that labor cannot consume more than can be produced. The laborer's consumption comes out of the national product. The larger the product the greater the possibility of larger real wages. Now, indexes of production presented earlier in this volume have shown that physical production has increased annually at an average rate of about 2 per cent per capita. This rate has prevailed at least over the period of one generation. The larger product would lead us to expect a larger wage income paid out of that product. But the above indexes of real wages show the contrary of such an expectation. Real wages declined. In spite of larger product, wage-earners lost. Greater product apparently does not necessarily mean greater real wages. It makes *possible* the wage increase, but does not guarantee that it will come about. *Laissez faire* does not enable the worker to exact his proportionate share of increases in productivity.

It may be asked, what became of the increased product during this period? If labor did not get it, who did? The answer is probably threefold. First, the share of middlemen and distributors may have materially increased. Second, the share of agriculture increased, except during certain post-war years. Third, the increase in production may have consisted more of producer's goods than of consumer's goods, in which case the share possible to divide with labor would be smaller than gross production figures would indicate. There is some evidence tending to support each of these inferences, but the evidence is not conclusive. The inferences are set down here merely for their suggestive value.

In the light of the above facts, it behoves those who advise labor that the sole hope for greater wages is greater productivity to amend their advice in one vital respect. That is to say, the advice should take into account the lesson of the past generation, to the effect that even though productivity does increase, wages may stand motionless, or may decline. If over a period of years, production increases, let us say, 20 per cent, labor has no guarantee that wages will increase at all. The automatic working of supply and demand does not guarantee an increase. Marginal productivity in a hypothetical static state does not guarantee an increase. Willingness to work hard does not guarantee an increase. It certainly should not evoke surprise that labor has begun to search with

scientific care for weapons which will insure to them a proportionate share of the nation's increased total product. The weapons proposed will be discussed later, but the problem itself should be clearly in mind at this point.

The Standard of Living and Wages.—Popularly, it is often assumed that the man with a high standard of living is entitled to a high wage. But in the economic régime the mere fact that a man has been able to maintain his high living standard does not *entitle* him to anything. The wage rates are not fixed on the basis of the things men are entitled to, as that word is commonly understood. If a well-dressed worker walks into the employment office, and demands a lucrative wage on the ground that he is an aristocrat among workmen he will get a sharp rebuff. He will draw only the going rate of wages for the given occupation, that much and no more, no matter whether he lives on the standards of a king or a flunkey.

Nevertheless, we do find a relationship between standards of living and wage rates. The most obvious relationship is the effect of living standards upon labor scarcity. It has been found that the well-to-do laborers have small families, whereas the cheap laborers have large families. The small family groups are scarcity groups. Restrictions of the birth rate among the higher paid laborers tends to restrict the supply of laborers of those grades. The scarcity of such laborers necessitates the payment of a high wage. Consequently, the standard of living does influence wage rates, but only indirectly. That is, it affects rates only by first affecting the supply of labor. It induces the laborer to limit the size of his family to that number which he can support without undermining his standard of living. The greater the scarcity of laborers, the greater the marginal value productivity of their labor, and the greater their pay. The less their scarcity, the less their pay. Standard of living governs scarcity, and scarcity in turn governs rates of pay.

In still another way, standards of living have come, especially in recent years, to influence wages. From many quarters has come the demand for a *living wage*, and for wage rates based upon the *cost of living*. The cost of living as a basis for wage determination is a comparatively new principle in economic life, and is not yet universally accepted. The older conception was that industry made possible the payment of only a limited wage, and it was not the fault of the employer if this amount was so low as to make it scarcely possible for the laborer to live, even in the dirtiest and meanest fashion. Business acknowledged no responsibility for paying a wage which made certain a fixed standard of living among the workers. But during the last half generation, the principle has been winning increasing acceptance that the industry owes the workers a good standard of living. An industry which cannot afford to pay a wage adequate for such a standard is parasitical on society and cannot justify itself. Although the new idea is still short of realization in many lines of industry, nevertheless there is a steady tendency toward its wider acknowledgment.

War time government boards did much to strengthen the movement, acting under the conviction that the standard of living as a wage principle has both a humanitarian and an efficiency justification. Felix Frankfurter, as chairman of the United States War Labor Policies Board, asserted: "The lesson of the war is that the adoption of so-called industrial standards, involving also standards of distribution of the product in the form of wages, results in a higher and more continuous output.

"As to wages, the general level has increased during the war. That is partly the reflex of economic conditions irrelevant to the discussion, but there was also a conscious effort to raise submerged standards of existence for workers." Moreover this standard is not the income for the individual, but for the family, "since the family is the unit of industrial work."²

The living wage allows for a wide range of interpretation. The truest conception of the principle is briefly stated by Frank P. Walsh, joint chairman of the National War Labor Board, in the following form: "Now that term is one having different meanings to different persons. The living wage suggests, perhaps, that amount of wage which will keep life in the human body. That is, of course, not what we understand by it. It has a definite meaning in the world of industry and in the literature of modern economics. It means the amount of wage upon which a worker and his family may be able to subsist in health and with reasonable comforts."^{2a} The range of expenditures covered by the living wage comprehends such items as food, housing, clothing, fuel, light, carfare, medical care, insurance, and sundry minor factors. The minimum which an American worker needs in order to be able to keep himself and his family in a state of reasonable comfort and health is the living wage. To insure vitality, health and vigor is not merely good ethics; it is good business. The American standard of living is higher than that of many other countries, and this fact of itself accounts in considerable measure for the relatively high efficiency of the American worker.

The exact amount of wage which is necessary to meet such a minimum requirement is difficult to state for the simple reason that price levels are constantly fluctuating and the purchasing power of wages fluctuates accordingly. The essential question is not: How much is the wage figure but rather how much will the wage buy? Before the war, the consensus of a number of careful wage and cost of living investigations was that for the family of the common laborer, an income of less than \$850 does not permit the maintenance of a decent American standard of living. This figure, as in the case of those mentioned later, applies to a family of five members. This is taken in wage studies as "the average family." Similar studies made during the year 1918 indicated that the minimum of subsistence at that time ranged between \$1,400 and \$1,500. W. F. Ogburn states, "Such a standard of living corresponds approximately with that of common or unskilled labor, and is what is generally referred

² *Survey*, Dec. 7, 1918.

^{2a} *Idem*.

to as a living wage." Fluctuations of prices and wages subsequent to 1918 must be taken into account in estimating the present minimum of subsistence wage figure. The most comprehensive and reliable wage and cost of living investigations in this country are those made by the United States Bureau of Labor Statistics. The aim of the Bureau's investigations is stated as follows: "It will become more and more essential as time passes that the decision of all questions involving the economic well-being of the laboring classes should rest, not on guesswork or on ex-parte statements, whether of employers or employees, but on the accurate, reliable and strictly impartial results of investigations such as the industrial survey."³ In 1919, the Bureau stated its findings as follows: "American families on the average are not fully nourished until their yearly income reaches \$1,800. . . . The average income and the modal income both fall well below \$1,600. . . . [These figures] do not mean that our working population is dying of slow starvation; nothing of the sort. But they do indicate that the workers of America are obliged to live on a diet too restricted and monotonous for the maintenance of as high a degree of efficiency and health as ought to be maintained as a reasonable minimum."⁴ This finding is substantiated by the bulk of reputable authorities in the field, and may safely be taken as the impartial, scientific facts of the case.⁵

For purposes of full clearness, it is necessary to relate the so-called living wage level to two other wage levels—the so-called poverty level and the comfort level. The poverty level is a demoralizing and devitalizing level. "Families living at this level receive charity in the form of gifts or free medical service or in other ways. Or if they do not do this they attempt to live on a level so low as to weaken them eventually to such an extent that disease inevitably overtakes them." Further, Parmelee, after an extended survey of the statistics and records bearing on the problem, concludes, "In view of the above facts, as well as various others that might be cited, it seems reasonable to assume that the number of persons in this country receiving charitable aid ranges from 5 to 10 per cent, varying somewhat according to economic and other social conditions."⁶ Within the poverty level should be included those whose incomes are so low that although they do not resort to charity for subsistence, nevertheless exist under conditions which involve distress and degeneration. As Parmelee states, "We have plenty of evidence that the number of those who do not even reach the lower minimum

³ Bulletin 265, United States Bureau of Labor, *Survey of Selected Industries in 1919*, p. 24.

⁴ *Monthly Labor Review*, Volume IX, pp. 7-13.

⁵ See P. Douglas and F. Lamberton, *American Economic Review*, Vol. XI, pp. 409-426. At the beginning of 1923, W. F. Ogburn stated the situation as follows: "I do not know what a subsistence wage is at the present time. I should guess that the minimum of subsistence standard would be for New York City today in the neighborhood of \$1,300, and very nearly the same for Chicago." Common labor in the second Federal Reserve District, however, was estimated as earning only \$900 a year, or much below the living wage standard. See *American Economic Review Supplement*, 1923, pp. 119 ff.

⁶ *Poverty and Social Progress*, p. 103.

standard of living is very great, probably exceeding 10 per cent of the population.”⁷

For a group of several millions of people in the United States to suffer poverty of a sort which is devitalizing is a haunting fact. As a statement of plain scientific findings, the following words by Hollander are directly to the point: “There are great bodies of people in country and in city who from birth have less than enough food, clothing, and shelter; who from childhood must toil long and hard to secure even that insufficient amount; who can benefit little from the world’s advance in material comfort and in spiritual beauty, because their bodies are undernourished, their minds are overstrained and their souls deadened by bitter struggle and want. These are the real poor of every community—the masses who, not lacking in industry and thrift, are yet never really able to earn enough for decent existence and who toil on in constant fear that bare necessities may fail.”⁸

The ordinary working of competitive wage forces has not averted the menace of this poverty line. From a social and economic standpoint, the degeneracy and devitalization which goes on steadily within these classes is a national liability of the severest sort. Economic science can find no sound laws or principles which deserve to stand in the way of eliminating the poverty line. Supply and demand, the wages fund, productivity,—any and all of the wage theories present no reasons why the poverty line is an inevitability. There is nothing unscientific in insisting that economics must concern itself with human welfare as well as with dollars and cents. The poverty depths are a challenge to the industrial order, and economic science must accept the poverty problem as a primary instead of a secondary one.

The dehumanizing consequences of poverty are not a matter of guesswork but of scientific ascertainment. The death rate due to the vicissitudes of poverty is approximately double that prevailing among the classes who have higher incomes. The infant mortality rates among these impoverished groups is more than double that of the normal well-to-do groups in America. Perhaps even worse is the fact that the number of days of sickness in proportion to the number of days of health is between 50 and 100 per cent greater among the laboring than among the professional classes. The defective wages mean unfit diet, tenement crowding, scanty clothing, inadequate mental care, frequent disease, an enfeebled physique and a harassed and haunted mind. From a strictly scientific standpoint, economics is compelled to deliver a most scathing denunciation of the toleration of the poverty levels in American society.⁹

A third level has been mentioned: the minimum comfort level. This level necessitates an income from \$300 to \$400 above the living wage level. An income within the comfort range would allow for a positive measure of cultural development. It would make possible more reading,

⁷ *Poverty and Social Progress*, p. 106.

⁸ *The Abolition of Poverty*, pp. 4-5.

⁹ Hayes, *Introduction to Study of Sociology*, pp. 98-99.

a better utilization of leisure hours, better educational opportunities for children, more valuable forms of recreation. It would tend to elevate the worker and his family morally, mentally and physically instead of handicapping him in all these ways. The minimum comfort level encourages higher standards of living and puts a premium upon the development of personality and the upbuilding of character. It frankly recognizes that such a human development is a distinct economic asset and that the distribution of the national product should more and more be controlled and organized toward that end.

Problems of Cost of Living Wages.—Although most budgets in cost of living studies assume an average family of five or of four and a fraction, this assumption is not fully in line with the industrial facts. The average family is only a mathematical fiction. The bulk of families are either above or below the average. Now, where a family is larger than the average, the wage suited to the family of five is too small. And, conversely, where the family is smaller than the average, the wage suited to the family of five is too large. In the former case, the large family is unable to maintain an adequate standard of living on the average wage. The mother and the children are forced to go out into factories and mills in order to supplement the wage of the head of the household. Although this augments the total family wage, it may have a deleterious effect upon the family as a group. But in the opposite case of the small family, the problem is quite different. Well paid individuals who have no one to support but themselves are for the most part the ones who flaunt silks, furs and motor cars, and there are enough of these individuals to make quite a show and create the impression of extravagance in the public mind.

In France, Belgium, The Netherlands, Germany, and other countries experiments have been conducted to test a new method of wage adjustment to family need. The wage is made to vary in proportion to the size of the family. The larger the family the larger the wage; the smaller the family, the smaller the wage. The living wage principle is thus adapted to the actual number of dependents upon the wage earner rather than to the mathematical fiction of the "average family of five." By graduating the size of the wage to the size of the family, remuneration comes to correspond closely with the needs of each family group.

The attitude of government boards and officials has not been uniform enough to establish any standard policy. President Wilson appointed an Industrial Conference in 1920, which formulated its position in these words: "Considered from the standpoint of public interest it is fundamental that the basic wages of all employees should be adequate to maintain the employee and his family in reasonable comfort, and with adequate opportunity for the education of his children. When the wages of any group fall below this standard for any length of time, the situation becomes dangerous to the well-being of the state. No country that seeks to protect its citizens from the unnecessary ravages of disease, degeneration, and dangerous discontent, can consistently let

the unhampered play of opposing forces result in the suppression of wages below a decent subsistence level. Above that point there may well be a fair field for the play of competition in determining the compensation for special ability, for special strength or special risk (where risk is unavoidable), but below that point the matter becomes one of which the state for the sake of its own preservation must take account."

A sharply different position was taken by the majority of the United States Railroad Labor Board in 1922 in a decision on the wages of Maintenance of Way employees: "The abstract elusive thing called 'the living wage' is confessedly based upon a makeshift and cannot receive the sanction of the board because it would be utterly impractical and would not be 'just and reasonable' as the law commands. The living wage is defined by its proponents before this board as follows:

" 'A wage which will support a family of five in health and reasonable comfort, such family being assumed to consist of a husband and wife and three dependent children under sixteen years of age.'

"This constitutes a bit of mellifluous phraseology, well calculated to deceive the unthinking. It has frequently been demonstrated that a melodious slogan contains more possibilities of danger and destruction than a dynamite bomb.

"To ascertain what is reasonable comfort, it is proposed that experts shall prescribe a standard of living for a family of five, setting out in minute detail what the experts think such a family should have in food, clothing, furniture, housing, and all the other necessities of life. The fallacy of this proposal is inherent and fundamental. That it would be wise and practical to undertake to establish an arbitrary standard of living for several millions of people is not apparent.

"The representative of the employees states that according to the lowest living budget now available the living wage for common labor should be 72 to 75 cents an hour. To bring the rates of common labor on the railroads to 72 cents an hour would necessitate an increase of 125.7 per cent. This would add approximately \$3,112,952,387 to the annual payroll, and the carriers would face an annual deficit of \$2,241,639,518." ¹⁰

In all attempts to apply the cost of living base, studies are made of changes in retail prices. An index of the cost of living, based upon typical family budgets, is indispensable. But of equal importance is an index of production. The production index should be twofold. It should measure increased production in the given industry, and it should measure increased production in the nation as a whole. When the indexes of cost of living and of production have been compared, further factors must be taken into consideration. These further factors include the going rate in other lines of business, the degree of risk and hazard attached to the industry, the amount of education and training required, and the attractiveness of the work.

¹⁰ For this and similar decisions, see Herbert Feis, *Principles of Wage Settlement*, Chapters 3-5.

The attitude of the labor unions is not uniform in demanding the living wage principle. The railroad unions have tried to gain acceptance of the principle by the Railroad Labor Board but have failed. Samuel Gompers, before his death, took a strong stand against the principle. He held that it was degrading to labor to be told that it could expect nothing better than the bare necessities of a living. He preached the gospel of progress and urged labor to demand higher and higher wages rather than to be content with a living wage. Even the cost of living he deprecated as a wage base, because he believed that wage boards would always take the existing cost of living as the adequate cost of living. The status quo would be accepted as an adequate wage level. The emphasis of the American Federation of Labor philosophy was that labor should demand more than accepted cost of living rates in order to guarantee a progressive and dynamic labor income.

Legislation as a means of establishing the minimum wage has been widely tried out. New Zealand adopted such legislation in 1894, and during the next two decades, England, France, Australia, Canada, and other countries followed a similar course. In the United States, the initiative was taken by Massachusetts in 1912. At first, there was much doubt about the constitutionality of minimum wage legislation, but this doubt appeared to be removed when in 1917 the United States Supreme Court, by a five to four decision, upheld the constitutionality of the Oregon law. The minimum wage was held to be a permissible infringement of the rights of free contract and of property, on the grounds that it was a necessary means of protecting the health and morals of the people, and came within the scope of the so-called "police power" of the State. Reassured by this decision, numerous states put similar laws on their statute books. By 1923, thirteen states and the District of Columbia had minimum wage legislation. In that year, the Supreme Court nullified the law which applied to the District of Columbia, on grounds of unconstitutionality. This decision, for all practical purposes, reversed the decision of 1917. In 1925, the Arizona law was declared unconstitutional by the United States Supreme Court. These recent decisions can have no other effect than to destroy all legislation in the United States intended to compel employers to pay a living wage. The only kind of legislation which can now survive is that which, like the Massachusetts law, publishes cost of living data, and recommends a minimum wage, but does not compel its adoption. The whole question is chiefly of interest to women and children in industry, since legislation on the subject applied specifically to them. It was assumed that they stood in special need of protection by the state. Under the present legal status, the minimum wage cannot be guaranteed to adult women, although it may still be guaranteed to children and minors. Where tried, the minimum wage has proved economically sound, and it is to be regretted that judicial obstruction has thwarted a measure which was socially and economically desirable.

Financial Incentives.—The abstract size of the wage is not by any means an all-sufficient inducement to efficient work. The *method* by which the wage is paid has a vital importance. Scientific methods rest upon analysis of the psychology of the laborer. It is possible by proper stimulus of the worker to evoke a highly efficient response. The problem of management is to find the right stimulus to call forth the desired response. This problem is in large part directed at the method of paying wages.

If wages are paid in the form of *time* rates, it is desirable that the laborer know why the rates have been fixed at the given level. Employees have in various cases proved their willingness to take a wage cut, when the management has taken them into confidence, and explained the necessity for the change. Laborers who sulk and chafe under a given wage may frequently be transformed into coöperative workers by being given a works committee and invited to inspect the books of the company. Frankness and publicity in wage payment tends to eliminate suspicion and friction between management and men. The human relationship prevailing influences workers' reactions to wage rates and other employment conditions. The environment of the job must be conducive to mutual confidence if wages are to evoke efficiency.

Piece rates in one form and another are often used as a system of incentives to greater output. The simple piece rate method rewards labor in proportion to the number of units of product turned out by the worker. A more complex form of piece remuneration is the bonus method. The bonus method of payment starts with a base rate of pay for a given task, and adds to this base rate an increase in some ratio to the excess of production above the standard task. The setting of the standard task involves time study of the separate stages of the manufacturing process and a careful estimate of the amount of work which a normal laborer ought to turn out in a certain period of time. The bonus constitutes a reward for speeding up and for turning out a product above the normal. The United States Bureau of Labor reported in 1904 that the average increase in production where piece rates are in vogue ranges around 25 per cent. Experiments with the bonus system have often increased efficiency from one to several hundred per cent. General experience would indicate that when rightly applied these two forms of financial incentive are effective in securing an increased production.

The bonus incentive may be used for other purposes than output. It may be used as a reward for improved quality in production, for economy in use of material, for steady attendance, for length of service, or other performances beneficial to the business.

The workers have often opposed bonus payment and piece rates. Their opposition is no reflection on the merit of the methods as such. In the hands of many employers, piece rates have been used to the detriment of the workers. When the rates were installed, the workers strove hard, and earned a great deal of extra pay. When the employer saw how hard the workers could toil when they wished to, he cut the basic

wage. Thereafter, the worker was forced to work at the new fast pace in order to total a wage as large as he formerly obtained. The cutting of piece rates has been a notorious evil in many factories, and has aroused the resentment of the workers. The hostility of unions toward and the prejudice of workers against bonus payments rest upon past experience of an unsavory kind.

Some employers have of their own free will established a policy of high wage rates, either time or piece, on the theory that the high rates will stimulate men to their best effort. Their output will increase to such an extent, it is believed, that actual labor cost per unit of output will be reduced. Hence, employers of this class declare that high wages are after all the cheapest wages, measured in terms of unit costs. The high rates paid are well above the going market rates for the given grades of labor. The most famous instance of this policy in the United States is the high wage rates in force in the Ford automobile plants. The plan appears to be successful where the management is alert and skilled in handling labor. It places a very heavy responsibility upon management. The success or failure of the plan hinges upon the managerial factor.

Finally, financial incentives may take the form of remuneration outside of the wage proper. These supplementary rewards may include profit sharing, stock participation plans, pension systems, thrift and savings campaigns, and mutual benefit associations. It should be emphasized that none of these plans is a substitute for an adequate direct wage. If the wage itself is good, then these supplementary plans offer certain advantages. Profit sharing has been used as an incentive to efficiency and loyalty. In a surprising number of cases, it has met with failure. It is easy to operate when profits are good and there are gains to be shared, but it is difficult to operate when profits are poor, and losses are to be shared. The test of success seems to have depended more upon the fairness and skill of the management in executing the plan adopted than upon the automatic workings of any particular system as a system. Many corporations encourage their employees to buy the stock of the concern on specially favorable terms. The ownership of stock is intended in part as a means of binding the sympathy of the workers with the property interests. With every worker himself a capitalist on a small scale, the partnership of labor and capital is impressed upon the worker's mind. It may broadly be observed of all these supplementary rewards that they may be useful incentives, provided that basic wages and fundamental working conditions are satisfactory. If, however, the supplementary incentives are used to cover up defects in basic policies, or to sugar coat obnoxious working conditions, they lead to friction and misunderstanding.

Non-financial Incentives.—The worker is not a penny slot machine. There is more to his motivation than cold cash. Financial incentives are not by any means the only important incentives to his loyalty, efficiency, and productivity. Non-financial incentives are just as essential. To apply non-pecuniary incentives, it is necessary to adapt working

conditions carefully to the psychology of the worker. The following list of such incentives is by no means complete, but should be suggestive:

1. An incentive to devotion to the laborer's duties is found in giving the laborer information about the productive process. Standing at his one machine, making but one isolated, unrelated part of the finished product, the worker attaches little significance to his operations. What is it all about? He does not know. But along comes an industrial engineer to draw up diagrams and charts which present vividly and clearly to the worker the part which his individual touch plays in the formation of the finished article. Perhaps a moving picture of the whole manufacturing process is made and presented to an audience of workers. Talks by executives are used to explain the scheme of manufacture. The worker is thus able to discover the ultimate meaning and significance of his work. "Interest in a thing may be developed by means of extending information about it. . . . In applying this in industry, one would tell the employees many things about the business, soaking them in facts to the point of saturation. . . . To inculcate a deep affection and loyalty toward the firm, give information about its beginnings and growth."¹¹

From a thoroughly practical viewpoint as an industrial engineer, C. E. Knoeppel writes, "Wherever far-sighted executives have widened the vision of their workmen by explaining the relation of their work to the whole plant, a better and more nearly normal relationship has followed."¹²

2. Another incentive has been discovered in the practice of frankness with the workers about the hitherto concealed facts of the business. Government representatives enlisted the support of the I. W. W. lumbermen of the Northwest during the war by having the owners open their books and show the costs and profits of the business. A number of concerns voluntarily take leaders of the workers into their confidence on the ups and downs of the business, and this factor of candid consultation, and frank give and take of information about the profit and loss phases of the company's business establishes a mutual confidence and understanding which serves as a powerful incentive to loyalty and interest on the part of the worker.

3. Incentives are possible only when the worker feels that his new interest in the enterprise will not be exploited to the undue selfish advantage of the employer. As is pointed out by Tead and Metcalf, "There is, finally, the fear of exploitation if interest in work is pushed to a point where the employer gets a much larger proportionate return for increased product than the worker. . . . The arousing of interest is not synonymous with efforts to 'speed up' production, to cut wage rates, to increase profits. At that moment when workers feel they are being tricked into interest in work in order that their employer may get added returns, the game will be up with the employer." One of the surest ways in which the impression of trickery can be given is the all too

¹¹ H. D. Kitson, *Journal of Political Economy*, Volume 28, pp. 332-336.

¹² *The Nation's Business*, April, 1921, p. 17.

prevalent device of cutting piece rates when an increase of production takes place. If the worker is satisfied that a proper share of the increased output will come his way, there is something to fire his imagination. The integrity of the employer is of itself a genuine non-financial incentive.

4. Stability of employment is a loyalty incentive when the worker sees that the employer is concerned with his interest to the extent of making every effort to eliminate seasonal shut-downs, and to keep going, even if only on part time, when business is slow. The worker has a reason for a responsive attitude toward the employer. Loyalty to the worker in the form of maintaining a steady job begets loyalty to the employer in the form of interest in the job. To secure this incentive, management must convince the worker that it is doing its best to give him an uninterrupted chance to earn a living.

5. Rivalry is stimulated by posting the records of production for individuals and for groups. When men can see their efficiency rated side by side with that of their fellow workers, it becomes a matter of pride to come near the head of the list. Moreover, records which indicate the quality of the finished product and the amount of spoiled goods tend to foster a real pride of craftsmanship. Another form of record gives the worker his comparative efficiency today and a year ago today, with the result that he tends to take pride in progress in his skill.

6. Fitting the worker to the job by intelligence tests, ability tests, job specifications studies, and efficiency ratings, makes possible a harmony between the human factor and the machine factor, which tends to heighten interest in the job. In the first flush of enthusiasm for psychological tests, experts overestimated their value considerably. Their usefulness is thus far confined to certain highly specialized tasks, such as clerical work, inspection tasks, salesmanship, and tasks where acuteness of hearing or vision are of vital importance. The tests themselves, such as the Binet, the army, and special industrial forms, are in a far from completed form for full industrial applications. The correlation between tests and subsequent performance records indicates that the tests are not a sure indication of ability, but at most point to a probable efficiency or inefficiency. Hence they have to be used with a wide scope for judgment and common sense on the part of the employer. Their effective use requires administrators who have had special psychological training.¹³ Purely psychological tests need to be supplemented by physical, medical and physiological tests to discover the endurance of the worker under the working conditions of the occupation in which he is to be placed.¹⁴

7. Transfer and promotion are practicable aids to sound labor incentives. Henry Ford states that the repetitive machinery of automobile manufacturing would drive the workers crazy unless they were given variety at right intervals by transfer from one type of machine to

¹³ H. D. Kitson, *School Review*, Volume XXIV, No. 3, March, 1916.

¹⁴ R. W. Kelley, *Hiring the Worker*, pp. 91-97.

another, or from one department to another. Transfer thus serves to alleviate monotony. Again, if a worker is found inefficient at one type of work, the scientific solution is proving to be to try the man out at other types until he gets the right sort of task for his peculiar nature. If he is at odds with the foreman of one department he may be transferred to another foreman. These policies secure the confidence of the worker and are a substitute for a former policy of discharge the instant the man proved incompetent. At each job held, efficiency reports may be made, based on piece-rate records, quality of work, judgment of foremen and superintendents, character traits, attitude toward work, etc. These ratings can be used from time to time as the basis of promotions.¹⁵ "Many organizations lose a considerable degree of the enthusiasm and zeal they might command by failing to make it apparent that they will recognize merit and advance the ambitious. . . . Any transfer or promotion plan which is to be permanently sound should, therefore, meet this test: Does the plan stimulate and draw out the desire of people to be creative, to be interested in their own activity, to excel, to win approval, to develop in power of self-expression?"¹⁶

8. A great number of employers have set up organization machinery which invites and encourages the suggestions, viewpoints, and opinions of workers. The devices of labor representation are various in kind, but in all their variety, are based upon the value of evoking the mental activity of the workers. Joint conference, consultation, discussion, all serve to clear up misunderstandings, to create a new feeling of dignity and self-respect on the part of the worker, to develop a sense of responsibility and self-control, and most important of all, to build up a feeling that the interests of the worker are one with the interests of the employer.

9. The morale of the workers has been elevated by the improvement of their environment. Attractive homes, hospital care, recreational facilities, pleasant factory conditions, all have their effect on the psychological reactions of the worker. By encouraging a psychologically abundant life, the worker develops a richer personality and exhibits a steadier and higher material efficiency.

10. "Men must get the feel that they are working for efficient managers if they are going to be interested in increasing production."¹⁷

Especially must the workers feel that the management is intelligently and scientifically handling the personnel side of the organization. To quote Meyer Bloomfield, "When everything that present-day science can suggest in the way of improving technical efficiency in systems of cost keeping, equipment, machinery, and material has been adopted, the biggest of all industrial problems remains to be faced.

"As we have seen, this is the problem of handling men. Every awakened employer knows that managing employees, selecting, assigning,

¹⁵ R. W. Kelley, *Hiring the Worker*, Chapter VIII.

¹⁶ Tead and Metcalf, *Personnel Administration*, pp. 228-235. See also, R. A. Spaeth, *Industrial Management*, March, 1920, pp. 213-217.

¹⁷ *Survey*, March 5, 1921, p. 817.

directing, supervising and developing them, is the one phase of management which is most difficult and complicated.”¹⁸

To perform this important function, a new profession has come into being within the last few years, that of employment management or personnel administration. The manager of this department of the business conceives of the human factor as a problem calling for scientific analysis of every phase of the employment relationship. The consequent good-will and mutual understanding are the results of the incentives aroused in the laborer's mind.

This list does not in any sense exhaust the non-pecuniary incentives possible in the processes of production. They illustrate a number of the possibilities. There are so many things which count in the worker's life besides the amount of his income that economic principles based upon the assumption that the laborer is a one-motive being—and that motive purely mercenary,—have gone far astray. The non-possessive impulses, when properly stimulated, build up a better balanced life for the worker and supply the employer with a producer whose heart is in his work.

Bargaining Power and Wages.—The individual laborer is at a disadvantage in dealing with the corporation. He has less skill and sagacity as a bargainer than his employer. He has less knowledge of the labor market than his employer. He has less ability to hold out for his terms than the employer. The last difference is perhaps most crucial of all. If the laborer does not take a job at the wage offered, he may not be able to get any job at all. The employer will scarcely be affected by his refusal, because the employer can readily hire some one else. Individual bargaining means that the worker must match his feeble bargaining strength against the immense power of the corporation. Individually he is no match for the employer.

The gospel of unionism is collective bargaining. The union aims to strike a superior wage bargain by virtue of its leadership, its knowledge of the market, and its ability to strike in case of necessity. The experts who year after year represent the unions in negotiations with employers become highly skilled in exacting the last farthing from the employers.

The unions consider the abstract law of supply and demand an obsolete shibboleth. They refuse to be bound down by its implications. By organizing their membership, they revolutionize the supply factor, and bring it under their own control. Some of them limit their membership as a means of limiting supply. But perhaps their greatest supply factor is their monopoly threat to cut off supply altogether by going on strike, if their demands are not met. The arbitrary law of supply and demand is thus annulled, and a new strategy is introduced whereby the laborers emancipate themselves from iron clad laws. The wages of collective bargaining are pressed upward through manipulation of the *supply* factor. In marginal terms, unionism defies any fixed and constant unit of marginal productivity. It acts upon the assumption that

¹⁸ Kelley, *Hiring the Worker*, p. 9.

marginal productivity is a highly flexible quantity, and can be altered by deliberate effort. One central intent of their effort is to raise the marginal productivity of labor by the arts and devices of collective bargaining.

Although the collective bargain promises advantages over the individual bargain, nevertheless either form is dependent upon an outside factor, namely, the law and the courts. Bargaining power is, in essential respects, a creature of law. It is created through the liberties guaranteed to workmen and unions by law, and the restrictions imposed by law. The employer may fire a laborer for belonging to a union, but a state or federal law forbidding the employer to fire a man for this reason is unconstitutional, on the ground that it encroaches upon freedom of contract and deprives the employer of liberty or property without due process of law.¹⁹ At one time, a union was illegal in its very nature. Later, its existence was legalized, but many of its practices were made illegal. Strikes are legal under some conditions and illegal in others. Injunctions against union policies may be used as a means of preventing unions from conducting strikes or carrying out other objectionable policies. If a strike is called, picketing is thought by labor to be essential to winning a victory, but picketing must be peaceful to be lawful, yet picketing is an activity which in its very nature invites friction rather than peace. A labor agreement by an individual is a contract, but is not enforceable. It is terminable at the will of either party. A collective bargain is a wage contract, but the exact status of its enforceability is not certain. Labor itself has been held to be a form of property but different in nature and rights from some other forms of property. The area within which the unions may swing the power of collective bargaining is now narrowed and now expanded by the law and the courts. Bargaining power is not a fixed and eternal thing written in the laws of nature, but a passing and ephemeral thing written in constitutions, legislative enactments, and judges' decisions. *Bargaining power is whatever the legal and judicial thought of the times makes it.*²⁰

Habit and Custom in Wage Determination.—Much that we tend to glorify as inevitable under the head of supply and demand, or of marginal productivity, is none other than the force of wont and tradition. Habit and custom constitute a potent group of wage-fixing influences.

Lines of work which custom accepts as carrying prestige and social esteem often command a relatively low wage. Examples would be found in the "white-collared" clerical workers, or in the teaching profession. Again, the customary standards of one locality often keep wages higher (or lower, as the case may be) than those of a neighboring locality. Variations of wages as between different trades and occupations are in a large number of cases explainable by the custom and tradition of the

¹⁹ See 236 U.S. 1, 11. Also see W. W. Cook, *Yale Law Journal*, Volume 27, p. 779, 1918, and T. R. Powell, "Collective Bargaining Before the Supreme Court," *Political Science Quarterly*, Volume 33, p. 396, 1918.

²⁰ See J. R. Commons, *The Legal Foundations of Capitalism*, Chapter VIII.

lines of work involved. A Massachusetts Wage Commission has asserted that "wages among the unorganized and lower grades of labor are mainly the result of tradition and of slight competition."²¹ Employers who were habituated to the under-payment of sweated trades were sure that wages could not possibly be increased above the customary scale until the minimum wage laws came into play, defying custom, yet not ruining the business. Habit and custom operate in and through all other wage influences. Orthodox ideas of wage figures "which the business will bear," established notions of what constitutes "a fair day's pay for a full day's work," and current attempts to "adjust wages to pre-war levels" all illustrate the scope and force of custom in the setting up of the wage scale.

Standardization of Wage Rates.—In many lines of industry, wage rates for each occupation and class of labor have been standardized. Work is classified, and uniformity of rates prevails within each classification. Inequalities in rates of pay for men doing the same kind of work are eliminated. The same pay for the same work becomes the criterion of wage determination within the given group of workers. The standardization of rates eliminates the feeling of injustice which arises when one laborer receiving \$25 per week finds that another laborer doing exactly the same work is receiving \$30 per week. The laborers, through their trade unions, have commonly demanded standard wages, since these are adaptable to the purposes of collective bargaining. Personnel management has often classified the wage rates in standard grades in the interest of giving equal reward for equal work in the same line of occupation.

Much objection has been raised to standard rates on the ground that equal rates make no allowance for unequal abilities. It is claimed that the minimum rate taken as a standard tends to become the maximum rate for all members of the given group. The best workmen receive no more pay than the poorest. This criticism is doubtless grounded to a degree on fact. Standard wages, as applied, have undoubtedly been guilty of the evil charged. But the guilt in some cases does not at all imply that such a fault is inherent in standardization. In the best experiments with standardization, the standard rates are taken as minimum rates. Proficiency above the average is rewarded by a differential addition to the minimum. Flexibility of rates for extra merit above the standard has proved thoroughly practical. The standard rate, with individual differentials based upon individual achievement, is the principle in its most acceptable form. In the modern machine régime, when everything else is standardized, it is not at all unreasonable to suppose that standardization can be advantageously applied to the wage element.

Wages and the Ability of the Individual.—In industrial circles, one frequently hears the assertion that a worker is paid in exact proportion to his ability and his efficiency. If the worker wants to earn more, he is

²¹ *Report of the Commission of the Minimum Wage Boards*, January, 1912, p. 18.

told that the only prerequisite is that he deserve more. Each laborer is said to deserve just about what he gets.

This popular view suffers from the loose assumptions found in most popular views. If men working in the same shop or the same trade are involved, it is often true that the men who have shown superior ability gain more pay than their inferiors. But this comparison is strictly limited to different men in the same group. Now, relatively to the poorest men in the group, the best men may receive superior pay. But relatively to the pay in another trade, all laborers in the first trade may be underpaid. And relatively to the shares of profit or interest, both trades may be receiving less than they should.

In brief, the proposal to pay every man according to his ability means nothing if it is applied to any field larger than the single group of workers. Who can measure comparative abilities in diverse fields of work? A brilliant preacher may receive less pay per hour than a bricklayer. A veteran teacher may receive less reward than a plumber. An artist may receive less remuneration than a common laborer. A coal miner may receive less pay than a printer. Who shall say in any of these cases that one man has *earned* more than the other? Who can find any common measuring rod by which to measure the relative abilities of a man who preaches a sermon and a man who builds a house? Shall we say that the laborer in an automobile factory is more efficient than the postal clerk? In all these cases, *ability*, *efficiency*, *worth*, are futile terms. They are meaningless. The worker in each grade receives a wage in proportion to the marginal productivity of the worker. His scarcity, and the marginal demand for his product, will shape his wage. His ability in some abstract sense cannot be used as a unit of calculation of the wage to which he is entitled.

The reward of ability within a given field is the only ability wage which can be clearly recognized. The best workers are in greatest demand in their trade. The best teachers are promoted to the best jobs in education. The best laborers become foremen. The best foremen become superintendents. But when we compare the return of the best teachers and the best plumbers, of the best machinists and the best nurses, we can find no common measure of ability. At that point the ability explanation of wages is empty and useless.

Education.—Education has often been looked upon as a source of increased wages. The worker is urged to acquire education, to the end that he may receive higher pay. The assumption is that education will be a direct cause of greater income, that a trained mind will command more pay than an untrained mind, that knowledge will be worth money to its possessor.

This assumption is sound, if it is applied strictly to two workmen of the same kind. The clerk who goes to night school, reads good books, and studies the intricacies of his work, will tend to receive more pay than the ignorant and indifferent clerk.

But the educated clerk may receive less than the uneducated

plasterer. The teacher who has taken graduate work in college may receive less than the plumber who has never been in high school. As between different kinds of labor, education is no measure of different degrees of remuneration.

For the mass of labor, education is a source of gain for the reason that educated labor is capable of turning out a greater national product of goods and services. The greater the output, the greater the possibility of added consumption. If labor scarcity is maintained, this *possibility* may become a reality. Wages may tangibly increase. But if labor supply is excessive, the educated mass will raise their physical product without raising their real income proportionately.

In comparing the different effects of education upon wages in individual trades, distinction must be drawn between education as such, and the *scarcity* of educated workmen. Educated labor does not receive relatively high wages because it is educated, but because there is a *scarcity* of the educated workmen. The effort and persistence necessary to obtain education weeds out the majority early in the race. Only the few survive the rigors of continued application, examinations and tests. The obstacles to education are so severe that a scarcity of educated workers prevails. Now, it is this scarcity factor which accounts for the inequalities of the wage return on education in different occupations. The teachers in secondary schools receive very moderate pay in spite of their education, the reason being that an oversupply of teachers is usually available. If labor is oversupplied, no matter how much education it may have, its wage will be low. If labor is scarce, no matter how little education it may have, its wage will be high. Education is remunerative only when it is used as a means of entrance to those pursuits where ability is very scarce.

Numerous corporations provide educational facilities for their employees. "Americanization" subjects and English have been common objects of study, where alien labor has been largely employed. Company libraries are frequently maintained. Technical instruction is often provided, with a view to affording ambitious and intelligent employees an opportunity to advance themselves as rapidly as possible. Such instruction is one branch of employee welfare work, but a branch which is largely free of the objections commonly raised to welfare activities.

Hazards and Unattractiveness.—From the standpoint of abstract justice, it would seem that those who do the most unattractive or most dangerous work should receive the highest pay. But such an assumption would not square with the economic facts. Laborers who are unqualified to do anything else can do the most unattractive forms of common labor. The field swarms with such laborers. As long as the field is oversupplied, it will be under-paid, no matter how unattractive the work is. It has been found that many of the workers who toil under conditions which are hazardous to life and limb, which are unsanitary or even poisonous, which shorten the length of life from ten to twenty years, nevertheless receive a pittance as their reward. The employer can step

out to the factory gate, and find a long line of unhappy applicants hoping that they may be taken onto the pay roll. He, therefore, cuts down the scale of pay to the minimum of bare physical subsistence.

The movement to recognize the human element in labor has led many industrial interests to be more considerate of laborers in dangerous and unpleasant lines of work. Personnel managers, in classifying work, have taken into account as one element in classification the hazardous and unattractive features of it. Arbitration boards, labor unions, regulating commissions, have endeavored to make some allowance for these aspects of work. This progress in recognizing the human factor is an important social gain.

Conclusion.—The wide variety of wage influences is apparent. Although we may say that marginal productivity determines wages, we still have to find the forces which determine marginal productivity. This problem is the vital problem in wage study. It leads into the many and varied fields which have been briefly outlined: standards of living, standardization, ability, custom, incentives, education, scarcity, hazards, unattractiveness, etc. No one fixed, absolute principle is adequate to explain wages. An adequate theory must allow for a multiplicity of factors. The influence of each factor will vary in every new circumstance.

A wage theory should be realistic and should fit the facts of economic life. The most realistic method of wage settlement is not based on a conception of some one wage law into which wage facts of all sorts and varieties must be made to fit, as into a strait-jacket. The truly realistic method is based on a conception of the full list of wage forces, playing widely varying parts from instance to instance, combining in new and original forms, requiring in each individual case an estimate of its peculiar and unique grouping of all the forces in operation, and taking on new and differing degrees of influence in national and international wage levels at various historical stages. At the same time, this *pluralistic* or group theory of wages has the distinct advantage of being genuinely serviceable because it keeps close to the evolutionary and dynamic facts of economic life.

The basis of this theory of wages in actual economic conditions has been expressed with reference to railway wages by the Railroad Labor Board in a decision in 1920 on the wage rates of approximately 2,000,000 railway employees: "The board has been unable to find any formula which applied to the facts would work out just and reasonable wages for the many thousands of positions involved in this dispute. The determination of such wages is necessarily a matter of estimate and judgment in view of all the conditions, a matter on which individuals will differ widely as their information or lack of it, their interest, situation or bias may influence them." The Transportation Act passed by Congress in 1920 laid down as a guide in determining what wages would be "just and reasonable" the following major considerations:

- (1) The scale of wages paid for similar kinds of work in other industries;
- (2) The relation between wages and the cost of living;
- (3) The hazards of the employment;
- (4) The training and skill required;
- (5) The degree of responsibility;
- (6) The character and regularity of the employment; and
- (7) Inequalities of increases in wages or of treatment, the result of previous wage orders or adjustments.

Marginal productivity determines wages, but these *pluralistic* forces determine marginal productivity.

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CHAPTER XXI

POPULATION, IMMIGRATION, AND WAGE CONTROL

The Effort to Control Wages.—For the most part, labor is not satisfied with the income received. The conviction is widespread that the income ought to be larger, and can be made larger. On all sides appear schemes for control of the labor income. Labor is desirous of bringing the wage factor under deliberate and purposeful control.

The group devices for this purpose are collective bargaining and wage legislation. These have been discussed earlier. But the individual device is silent and willful restriction of output in order to make work last longer. Workmen soldier on the job, go slow, and prolong the job to the utmost in order to stay on the payroll as long as possible. The many excuses for this practice are commonly referred to under the "make work" theory of labor. When the mass of laborers are individually following the make work policy, the burden of sabotage on production is very great. The efficiency of labor is undermined, labor costs per unit of product mount upward, and acute problems of industrial management arise. Management seeks to "speed up" the worker, whereas the worker slacks his effort so as "not to work himself out of a job."

Employers are accustomed to vent upon this labor policy their bitterest denunciation. They refer to it as the *make work fallacy*. They scoff at its pretension to benefit labor. They fight it as a menace and a scourge in production.

The extent to which the theory is a fallacy depends upon whether we take the long or the short view. In the long view, restriction of work is an unmitigated curse to labor. It is a restriction of the total fund of commodities of the nation. Labor can not acquire more commodities than are actually produced. If labor cuts down the amount produced, automatically it cuts down the amount consumed. In the long run, maximum national production is the hope of the worker. The employer, in denouncing the make work fallacy, is taking the long run view. And in this view, the employer is right. But that is not by any means the whole story.

In the short view, labor is partly right. Two things may happen if labor speeds up. First, labor may be dropped from the pay roll since all the work is done, all the orders are filled, and there is nothing else to do. The immediate reward for speeding up may be unemployment. The greater the efficiency of the worker, the sooner his work is done. Instead of getting increased pay for his pains, he gets no pay at all while he is unemployed. Now, the laborer lives in the present, not in

the remote and the ultimate future. He must have an income here and now, if he is to live decently. In the long run, at some far off, distant date, there may be a reward for his speeding up. But all this is hazy, invisible, evanescent, nebular. He must live day by day, not in dream land. He must pay for his groceries at the end of the month, not in the kingdom of glory ahead. And he knows from cruel experience that only so long as he clings to his job does he have an income. Small wonder that he clings tenaciously to that which alone keeps him from the distress of unemployment.

The make work policy is a creature of the evil of unemployment. It is a by-product of unemployment. If business could eliminate the fear of losing the job when work is done efficiently, the whole horizon of labor would change. The unemployment problem is the crucial force behind labor's soldiering. The fault lies not in vicious human nature, not in malevolent disposition, but in an institutional fact which management has not eradicated from modern business. That fact is recurrent unemployment. The cure for the make work fallacy is primarily the abolition of unemployment.

The second aspect of the short run view is the relation between speeding up and increased pay. The worker lives in the money economy. Pecuniary principles determine his fate. And one common fact which has been thrown in his face time and again is that harder work does not necessarily bring higher pay. All too common are the employers who cut wage rates as soon as superior efficiency is shown. Labor history is replete with labor disappointments at the empty results of speeding up. The pecuniary consequence of extra effort may be cut rates of pay. An indispensable step in the cure of the make work policy is a bona fide guarantee to the workers that they will receive a proportionate share of the increased product. Their lack of confidence in this outcome underlies their attitude toward their work.

In the money economy, and in the short run, speeding up may result in unemployment or merely more work without proportionately more pay. The worker is acting upon the canons of the money economy in his make work policy. These canons are not inevitable aspects of modern business. They are institutional left overs from an earlier day and can be remedied by sound policies of personnel administration.

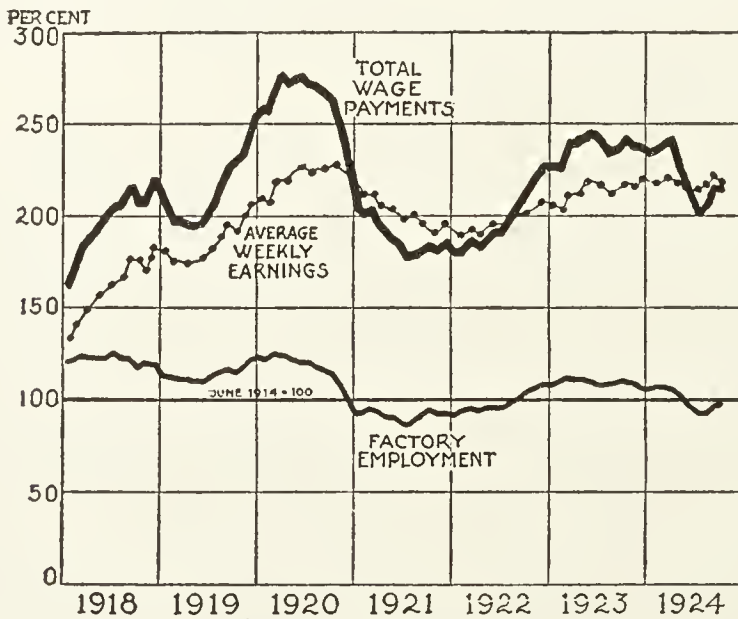
Wage Control and the Business Cycle.—The price fluctuations of the business cycle give rise to serious wage disturbances. When prices are rising, labor feels the pinch of the cost of living, and strikes for higher wages. When prices are falling, labor tries to hang onto its gains, and strikes to resist wage cuts. Wages tend to lag behind prices both on the up and the down grade, although in individual occupations this lag may be overcome by strong union effort. The wage lag means that unless unionism is especially strong, labor tends to lose in the upswing of the business cycle. But when all other prices come down, wages tend to hold their new level, and labor tends to gain. In no small measure, the secret of labor progress is to fight for increases while

prices are rising, and to fight to maintain the high wage gains while prices are falling.

Employers endeavor to deflate labor when prices fall, but wages lag behind price cuts. Consequently, the labor cost to the employer tends to be severe at such times. But this labor cost has one advantage to society, namely, it acts as a strong incentive to increase the efficiency of management. Management must try in every way to cut labor cost per unit of output in order to be able to pay the high hourly wage rates.

The cyclical fluctuations may be illustrated by the accompanying diagrams:

CHANGES IN EMPLOYMENT, IN TOTAL WAGE PAYMENTS, AND IN AVERAGE WEEKLY WAGE EARNINGS IN NEW YORK STATE FACTORIES.
(JUNE, 1914 = 100 PER CENT. LATEST FIGURES, OCTOBER.) *



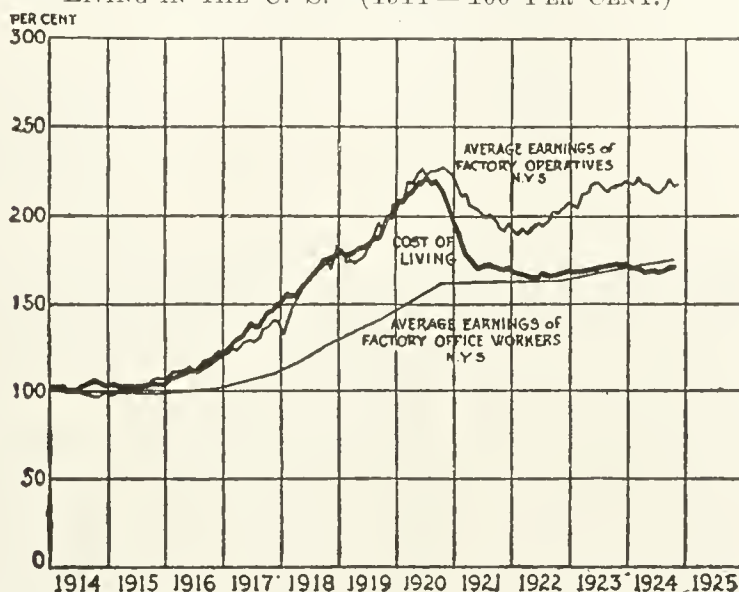
* *Monthly Review*, Federal Reserve Bank of New York, December 1, 1924, p. 5.

The above diagram emphasizes certain differences in the fluctuations of wage factors. Average weekly earnings are different from total yearly earnings, because unemployment enters into the annual calculation. In the depression of 1921, total wage payments were at their low point partly because of lower average weekly rates, but also partly because unemployment reduced the number of weeks actually worked. A difference between wage and unemployment curves is apparent. Factory employment increased much less as compared with 1914 than did money wages. In both wage and employment series, the high points of 1919 and 1923 contrast with the low points of 1921 and 1924. The movements of prosperity and depression are clear.

The following diagram compares wages with the cost of living. Wages in this case are weekly earnings. In the upswing of prices from

1915 to 1920, earnings of factory operatives barely kept pace with the cost of living, and earnings of factory office workers lagged far behind. In the down swing of prices beginning in 1920, earnings of operatives stayed well above the cost of living, and earnings of office workers caught up with the cost of living.

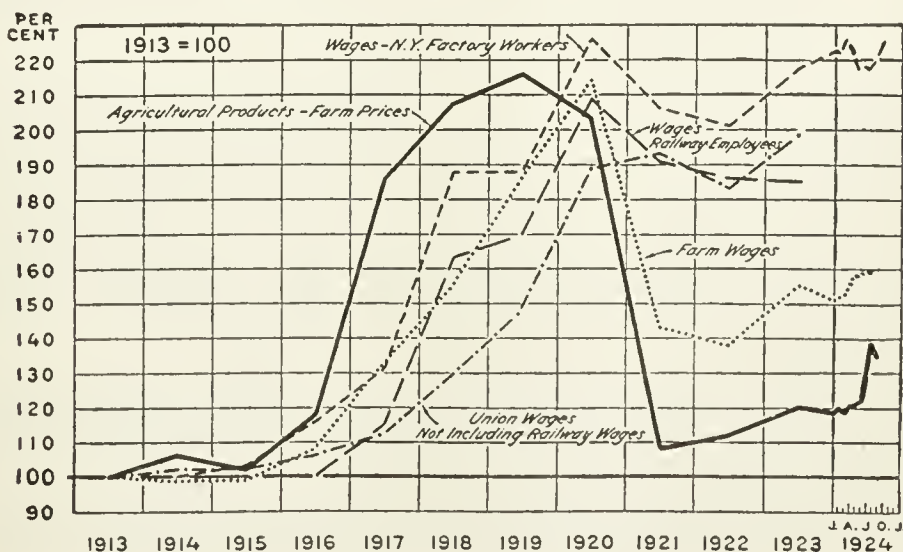
CHANGES IN AVERAGE WEEKLY EARNINGS OF OPERATIVES AND OFFICE WORKERS IN NEW YORK STATE FACTORIES AND THE COST OF LIVING IN THE U. S. (1914 = 100 PER CENT.) *



* *Monthly Review*, Federal Reserve Bank of New York, Jan. 1, 1925, p. 5.

The inequalities of wage fluctuations in the cyclical movements are indicated by the following diagram of four separate wage groups:

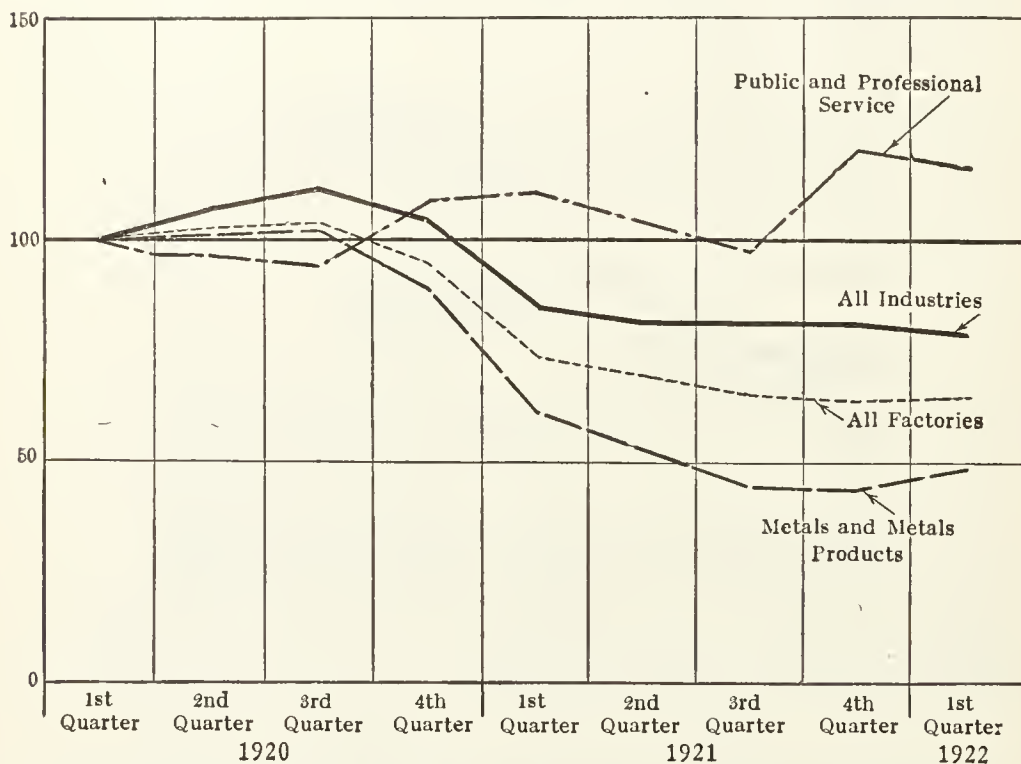
AGRICULTURAL PRICES AND WAGES *



* C. J. Brand, *Proceedings of the Academy of Political Science*, Volume XI, p. 21.

Union wages rose higher by far than farm wages, but not as high as wages of factory workers. All rates except farm wages were well sustained in 1921, and contrast sharply with the violent decline of farm prices. Inequalities of wage fluctuations are further illustrated by the diagram below:

QUARTERLY WAGES AND SALARIES PAID TO EMPLOYEES IN CONTINENTAL UNITED STATES *
(First quarter of 1920 = 100)



* W. I. King, *Employment, Hours, and Earnings in Prosperity and Depression*, National Bureau of Economic Research, p. 104.

King estimates that the salary and wage payments for the first quarter of 1922 were less by about 2,729 millions of dollars than were the total disbursements in the third quarter of 1920. The average earnings in 1920 of persons who, in that year, worked in plants employing over 100 workers, were \$1,544. In 1921, largely because of unemployment, their earnings had fallen to \$1,112, a loss of \$432. The cyclical fluctuation proves to be more severe in large corporate establishments than in the small plants.¹

¹ W. I. King, *Employment, Hours, and Earnings in Prosperity and Depression*, National Bureau of Economic Research, p. 144. Wages in the business cycle affect two interests beside labor. They affect the business man through fluctuations in his cost of production. They affect the selling end of every business since effective demand for commodities depends upon the spending power of the laborer as consumer. These two aspects of wages are considered more in detail in other chapters, especially those dealing with production, with consumption, and with business cycles.

The most valuable method of measuring wage fluctuations from the standpoint of business would be unit labor costs. Such costs would take into account not only the actual money disbursed for wages but also the relative efficiency of the wage. Business men commonly complain of the laxity and inefficiency of the labor force in the prosperity phase of the business cycle. They declare that once labor loses the fear of unemployment, it also loses efficiency. Labor costs mount during the advanced stages of prosperity, and tend to cut down profit margins. When both the advance in nominal rates and the declining efficiency of each hour of labor are taken into account, unit costs of production fluctuate severely. Unfortunately this interpretation is largely a matter of general observation merely, and has not been substantiated by adequate statistical proof. It is, however, the most plausible interpretation of the disturbances of labor costs in the business cycle.

Many authorities have claimed that if it had not been for the business cycle, labor would not have made as much progress in the past as the actual record shows. The basis for this claim is that although wages lag in the upswing, they refuse to fall in the downswing, and the net result is a labor gain. The disturbances of the cycle are said to have broken up tradition and custom, and to have introduced a progressive and dynamic force. The record of the past 50 years seems to substantiate this theory, to the extent that such gains as labor has received have come about in this manner. It does not follow, however, that it is necessary to retain the violence of the business cycle in order to insure labor successive wage gains. The forces of collective bargaining, labor scarcity, personnel management, and general control may be trusted to obtain more steady and reasonable gains, without all the bitterness and strife of the present situation.

A great part of labor unrest arises directly from the price and wage fluctuations of the business cycle. Labor strikes to force wages up at one stage and strikes to resist wage cuts at another stage. Unemployment, sabotage, soldiering, unrest, agitation, hatred, are the human harvest of the violent fluctuations. These social troubles are usually attributed to all sorts of strange causes by contemporary observers, but from a detached viewpoint, it is clear that they are in basic ways attributable to the cyclical disturbances between wages, prices, and costs.

Are Rising Wages a Cause of Rising Prices?—In business circles, wage increases are commonly thought to be the cause of increases in the price level. The employer lectures the employee with good advice, in which the point is forcefully made that if the employee strikes for a wage increase, the added cost will be tacked onto the price of the product, and the worker as consumer will pay just that much more for everything he buys. A 10 per cent wage increase is no gain if it is offset by a 10 per cent price increase on everything the worker buys.

As will be explained more in detail later, economists find that the

price level is not pushed upward as a result of rising costs, but as a result of changes in the quantity of money in circulation, and in general business psychology. The principle can be illustrated most readily from its more extreme expressions. Prices in Germany went to extreme heights because too many paper marks were printed and put into circulation. Rising labor costs were a consequence, not a cause of rising prices.

One fact which would throw doubt on the business man's loose assumption is the fact that wages lag behind prices. If wage increases do not occur until after prices have increased, it is unlikely that they could cause the increase.

Furthermore, our analysis of marginal utility would lead us to suspect the validity of the doctrine. If price is raised beyond what the marginal buyer will pay, the goods will not be taken off the market. Employers cannot arbitrarily add to their prices without suffering a falling off in volume of sales. This squeezing out of marginal buyers is a drastic check upon price boosting. But if the government and the banks are issuing more money units all the time, consumers will be able to buy the goods at the higher prices. And sellers, knowing that fact, will tend to jack the prices up, whether wages are raised or not. Unless more money is being put into circulation producers cannot keep up their sales when they try to add wage increases into prices.

The price level is not determined by the cost of labor, but by the quantity of money and other causes.

How Can Wages Be Increased?—A theory of wages must explain not only why wages have come to be what they are, but also how they can be made better. If we take marginal productivity as the principle of wages, we must search for methods by which the marginal productivity of labor can be increased. Wages as we find them to-day are far from ideal. At best, they supply the masses with a cramped and narrow existence. Every social thinker, every liberal, every public-spirited leader, must face the urgent necessity for enlarging labor income. The higher and the lower wants alike depend upon the pay envelope. The cultural and the spiritual satisfactions of modern life are in large measure dependent upon spending power. Amusement, recreation, education, appreciation of all the finer things in life, alike must be paid for. The demand for more wages is no sordid, materialistic aspiration. It is no crass, mercenary obsession with the physical indulgences of life. It is a human cry for more abundant life. It is a burning desire for the good things which distinguish civilized from primitive life.

But the effort to control wages for the progressive benefit of labor meets many doctrinal objections. The history of economic thinking is replete with theories calculated to prove that wages are a set and arbitrary sum, incapable of deliberate control. The subsistence theory taught that wages would always be at the bare level of existence. The wages-fund theory taught that only a fixed fund was available for

distribution, and no effort on the part of the worker could augment the fund. The supply and demand theory taught that the supply of and demand for the lifeless commodity, labor, would override all sentimental palaver about the human factor. The marginal productivity theory taught that each laborer would tend to get exactly what the marginal laborer produced, and this doctrine was interpreted to mean, in popular application, that the product was a fixed amount, beyond which wage increases were preposterous. *Immutable* wage funds, *iron* laws, *natural* levels, *determining* factors, *fixed* sums, *specific* products, *normal* rates,—these are but a few of the phrases which have been used in setting forth the fatalistic doctrine that the wage is what it is, and nothing can make it more or less.

In spite of all such warnings and forebodings, labor nevertheless possesses the determination to exercise some form of control over the wage income. And this determination rests upon a view of wage forces which has much to be said in its defense. The wage income is declared to be the result of *institutional* forces. These forces include all the social customs, the established ways of doing things, the business habits, the property and contractual institutions of modern society. All of these are man-made institutional fixtures. They are not immutable and inevitable. Customs and institutions can be remade. Economic habits and routines can be reshaped. The wage income is a pliable, flexible, elastic, dynamic thing, fluctuating with every social growth and every social decay.

What then are the possible sources of increased wages? How can wages be raised? What are the pathways of control? The alternative routes toward wage advancement may be classified under the following four headings:

1. Acquisition of a higher wage share by taking something away from the profit, rent, or interest shares of total product.
2. Maintaining the same proportional share of labor, but increasing the total to be shared by technical improvements in production within the plant.
3. Maintaining the same proportional share of labor, but increasing the total to be shared by improvement in the general inter-relations of all plants and all business units.
4. Augmenting the free income of the worker.

The acquisitive strategies of the money economy center about the maximum gain for the individual, whether he be business man or laborer. In the money economy and under the pecuniary régime, every man measures his success by the size of *his* income. Whether his income rises at the expense of some one else does not usually enter into his thinking. It is enough that he has won an acquisitive gain. Labor faces the possibility of making some acquisitive gain by paring down the other shares in the national income. If a factory, instead of making 20 per cent profit, is forced to give labor an increase which absorbs half of the profit, the capitalist is the loser and the laborer is the

gainer. This direct and immediate source of labor gain probably has occupied the forefront of the laborer's imagination in the bulk of union struggles for better wages.

To test the scope of this source of progress, it is necessary to view the matter in the large, and ask what would happen if all laborers were to seize such differential or acquisitive gains. How far can the process go before it meets a sharp arrest? Is there any room for its progress?

It appears that there is a certain small fraction of national income which is anybody's gain who can seize it. Even granting that rent must be a certain amount or land will be held out of use; that interest must be a certain amount, or capital will not be available; that profit must be a certain amount, or business ability will not be forthcoming, there nevertheless is a fringe of all these shares which can be made slightly more or less without ruining the respective shares. In an earlier part of this discussion, it has been shown that in 1916, labor received only 66.7 of the net value product of industry, but in 1918 received 77.3 per cent. In one year, the labor share was one-seventh greater than in another. An amount equal to from 5 to 15 per cent of the national income is apparently a legitimate field for an acquisitive struggle. The most powerful bargainers in business will receive this flexible fraction of income. At the border of each share is this plastic rim which may be narrowed or widened by the acquisitive struggle between labor and capital. These border surpluses may be added to or taken away from any share without wreaking disaster upon the loser. Labor, by strong bargaining, by proper scarcity, by policies of control, may legitimately aspire to win a part of this slice of national income.²

However, there is a quick and drastic limit to this plan for wage increase. At best the gains are narrowly limited. From statistical studies of the different shares, W. I. King arrives at the following conclusion:

"Thus it would seem improbable that, with our present national productive power, any feasible system of distribution could increase the average wage earner's income in purchasing power by more than one-fourth and this is an extreme rather than a moderate estimate. While such a change might or might not be desirable, it would, at least, work no startling revolution in the condition of the employees of the United States. The grim fact remains that the quantity of goods turned out absolutely limits the income of labor and that no reform will bring universal prosperity which is not based fundamentally upon increasing the national income."³ King's findings were based upon

² In strict economic reasoning, this plastic slice is traceable to the surpluses of each share. Producer's surplus is gained by those who could afford to sell for less, but do not have to because prices are set at the margin. Much saving would be done for less than the going interest rate, but does not have to be done for less, because rates must be high enough to attract marginal savings. These surpluses in profit, interest, and rent may be encroached upon somewhat by labor without visiting disaster upon the economic system.

³ *Wealth and Income of the People of the United States*, pp. 165-67.

pre-war figures. A post-war investigation has been made by David Friday, from which the conclusion is essentially the same. "The practical conclusion that follows from all this is that the source of real wages must be found in production and not in a redistribution of the product of industry.

"Those who had hoped to augment the laborer's real wages by making short shrift of the whole matter and adding to the laborer's wages what the entrepreneur now receives as profits, will be disappointed by this analysis of the situation."⁴

Turning to the second source of added wages mentioned in the foregoing classification, we may inquire into the possibilities of increased technical efficiency within the plant. The technology of production and the state of the industrial arts must be improved if total product is to be increased. These lines of development involve the efficiency of labor, the efficiency of management, and the efficiency of capital. That labor attains only a fraction of its possible efficiency in a large part of industry is a commonplace. How to multiply efficiency is in large measure a question of psychology. The right motivation, the right incentives must be present. The right working environment must be created as the stimulus to superior effort. A technique to cope with this psychological problem has been built up in numerous pioneer factories. The technique has been called "personnel administration," or "human engineering." It comprehends the whole industrial environment of the worker, and aims to make all details of working experience conspire to stimulate confidence, loyalty, satisfaction, interest, and workmanship.

Labor efficiency cannot be increased in the proximate future by better inheritance of native ability. Biological heredity offers no material hope of more efficient labor. The hope lies in realizing more of the present potential capacities of the laborer. By education, by social stimulus, by environmental improvements, by institutional development, it is possible to tap the great latent resources of efficiency in modern labor.

Increased efficiency of labor largely depends upon increased efficiency of management. Scientific management in labor relations frankly assumes the responsibility for labor efficiency. The widest conceivable differences in managerial ability appear at every hand. The backward and inefficient managements prevent labor from attaining full efficiency. The control of the human factor in industry has been one of the most baffling problems in modern business, but the application of scientific analysis to the problem has resulted in a body of methods and principles which are capable of yielding a large part of the solution. The best managed plants show what management can accomplish. Industrial engineers are themselves accustomed to assert that management is not more than 50 to 60 per cent efficient in the mass of cases.

David Friday has observed, regarding the period of the World War:

⁴ *Profits, Wages and Prices*, p. 236.

“That a 20 per cent increase in productive output is possible was demonstrated during the war. That the coöperation of labor is necessary to any such program is obvious. But the possibility of that coöperation was also demonstrated. Given an aim that appealed to the imagination, that made labor an integral part of the body politic, it demonstrated its willingness to coöperate. But there had to be a worthwhile end, and there had to be recognition of labor as a factor equal to the other partners in the industrial life of the nation.”⁵

In other words, even though labor should plunge enthusiastically into the task of increasing production in a measurable degree labor might have no assurance that a due proportionate share of the increase would be forthcoming in the form of wages. Labor has had ample bitter experience in the past to satisfy it that there are altogether too many employers who would pounce upon labor's increased productivity, and endeavor to retain the lion's share of the increase. The only safeguard against this encroachment which has thus far proved reliable enough to command the widespread confidence of labor is collective bargaining through a powerful, organized labor group. The indispensable understanding in labor's mind before any material increase of total production may be looked for, must be that labor shall receive a just and proportionate share of the increase. Unless labor can be reasonably assured of this outcome, labor cannot be expected to take part in the ideal of greatly heightened output. Many individual plants have experimented with such assurances, and have increased production in many cases by surprising amounts, but only because the individual employer has been progressive enough to comprehend labor's point of view, and to offer assurances which convinced labor that wages would constitute a fair and proper share of the increased product. The number of employers, however, who are unable because of traditional ways of thinking, to give labor such an assurance is so great that the laborer declines to trust employers as a class to grant what labor would consider a fair share of the increased product. For the general run of laborers, dealing with a large proportion of employers, the only satisfactory assurance lies in labor's power to claim a fair share of the increase, through agencies of collective bargaining. Even though this agency may often make exaggerated demands, and appear obstinate and headstrong and unreasonable in its claims, nevertheless the only sure recourse of labor is collective bargaining either in the form of works councils or labor unions. Democratic action in government or industry has grave faults, but the central necessity for the group method exists in industry as well as in politics, and the besetting sins of collective bargaining groups must be alleviated by a more co-operative attitude on the part of labor, capital and the public.

Fully aware of these phases of labor psychology, Friday further concludes: “We have learned that it is possible to produce enough

⁵ *Profits, Wages and Prices*, p. 236.

so that every class may have a decent standard of living. With this result realized, poverty will be abolished. This attainment is one of which nations have dreamed for centuries. No nation has been within striking distance of its realization before. If any national leader or any group can be found with the imagination and the courage to appeal to America on the basis of this motive, and with an adequate program, we shall see the most promising and worthwhile political and industrial experiment which we have tried in our national career."⁶

The efficiency of capital within the plant depends upon inventions, patents, scientific discoveries, mechanical improvements, cost accounting, proper motivation of labor, balancing the factors in production, etc. Laboratory experiment, scientific research, engineering developments, offer the hope of progress in this direction. The progress of the past in these respects has been revolutionizing, and new revolutionary discoveries appear constantly. Capital efficiency is a question not merely of the physical amount of capital, nor of its pecuniary value, but of its ability to turn out product at utmost speed.

We have discussed now the possibility of increasing labor's share at the expense of other shares, and the possibility of increasing the total product to be shared by superior efficiency within the plant. The third possible source of increased wages is increased total product due to scientific organization of the inter-relations of industry. These three sources have been called by W. H. Hamilton the *acquisitive* arts, the *industrial* arts, and the *economic* arts, respectively.⁷

The economic arts involve the planning of the economic life as a whole. The stabilization of business and the moderation of the business cycle are problems in the economic arts. Statistical records show that years of prosperity may bring a national product from 10 to 20 per cent above years of depression. If business could be run consistently and steadily at the volume attained in the good years of production, wages could be increased nearly one-fifth. This increase alone would be more than labor could hope to achieve by trenching upon the shares now going to capital. The elimination of unemployment would be one of the most momentous achievements ever made in behalf of labor income.

The economic arts also involve the problem of waste in distribution. The past 25 years have witnessed an excessive growth of middlemen, whose work in part is necessary, but which involves much inefficiency and waste. Students of distribution allege that from 10 to 20 per cent of the present cost of distributing products to consumers should be saved. The estimate is conservative. Among other tasks of the economic arts may be mentioned unification and consolidation of industry, collective research, statistical information, proper government

⁶ *Profits, Wages and Prices*, p. 251.

⁷ On the whole subject of control, the most comprehensive analysis is to be found in *The Control of Wages*, by Walton Hamilton and Stacy May.

aid to business, improvement of international trade relations, definitions of fair and reasonable competition, and stabilization of the general price level.

The fourth possible source of labor income has been called "free income." Public health service, public parks and playgrounds, welfare work financed by employers, facilities for adult education,—these services to the laborer are part of his free income. They are free in the sense that the laborer does not receive them in the form of a wage nor does he pay cash for them. Of course, they are not free to the community, for they must be maintained by the community out of public revenue, or by private business men out of private income. Nearly all such activities are vitally affected with a social interest. Free income is income intended to promote well-being. It really is an attempt to regulate the consumption of the worker. If left wholly to his own devices in spending his income, he is likely to slight many opportunities which are for his own best interest. *Laissez faire* in his consumption would be reckless. Regulated consumption is insured by the maintenance of all such social agencies under independent control. Free income comes out of the total product of industry. It guarantees that thus much of labor's product shall be used for necessary social purposes. Under an urban, congested type of civilization, the tendency is for free income to form a larger and larger part of the worker's total income.

In summary, we may note that the main possibility of marked progress in labor incomes lies in increased total production rather than in whittling away the shares now going to capital. This possibility rests upon a reorganization of institutional factors in all things which relate to labor. Institutional factors are not fixed and immutable, but plastic and adaptable. They are subject to purposeful control. Control is possible. Control is realizable. *Control should aim to include the acquisitive arts, the industrial arts, the economic arts, and free income, or the social arts.*

Wages of Women.—In 1920, 21.1 per cent of the women and girls ten years of age or older in the United States were gainfully employed. This meant more than eight and a half million women workers. In proportion to men workers, there is approximately one woman worker to every four men gainfully employed. One-fifth of the gainfully employed are women.

The wages of women are commonly lower than the wages of men. King estimates that in 1920 to 1922, female employees in general earned about three-fourths as much as males.⁸ In 1915, Persons estimated that almost half of women workers earned less than \$6 in a representative week, and approximately three-fourths earned less than \$8 per week.⁹ Douglas in 1921 estimated that the average wage for women was not

⁸ *Employment, Hours, and Earnings in Prosperity and Depression*, p. 144.

⁹ *Quarterly Journal of Economics*, Volume 29, pp. 201-234.

more than one-half that for men.¹⁰ The disparity of wages between the sexes is severe.

To combat this disparity in wages, the slogan, "Equal pay for equal work," has been given wide currency. In spite of such efforts, many causes combine in keeping the wages of women workers down. A large percentage of women workers are not interested in learning a trade or acquiring skill, since they expect to stay in industry only temporarily. A large percentage of girls in industry are merely marking time until they can get married. Usually they do not have as many dependents as men, and they can therefore afford to accept lower pay than the head of a family. The sheer force of custom is as important as any one thing in keeping women's wages low. Intermittency of employment is more severe, owing to physical weakness, home cares, and mother duties. Finally, the mass of women workers are unorganized and lacking in bargaining power. In certain clothing trades, women's unions have shown vitality and power, but these are the exceptions rather than the rule. Where women do equal work with men, there is no reason inherent in the nature of things why they should not receive equal pay, but the obstacles to that goal are slow in giving way, except as the power of union collective bargaining is brought to bear. As previously explained, the relatively weak position of women in bargaining has led many states to pass minimum wage laws. Such legislation safeguards the standard of living of women workers.

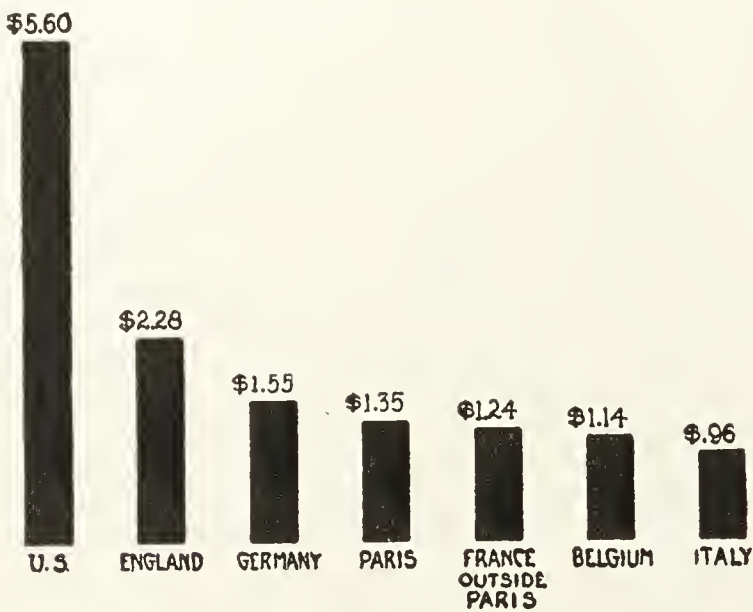
International Wage Comparisons.—Labor costs differ sharply between countries. Comparisons may be made either with respect to money wage rates per day or per hour in various countries or with respect to quantities of output in proportion to quantities of labor expended. In the former case, measurement is made in dollars, or other money units; in the latter case, measurement is made in terms of tons or yards of output per worker per annum or other period of time. Both the pecuniary and the physical methods of measurement are illustrated by the tables on pages 402 and 403.

The most conspicuous lesson of these figures is that although money wages are higher in the United States than in any other country, nevertheless real labor cost per unit of output is in many lines less than in other countries. The real labor cost is the combined result of the money wage and the effectiveness of labor. Effectiveness is greater in the United States largely because of superior use of automatic machinery and of other forms of capital. There is no vital difference in sheer physical ability of the workers in various countries. The difference lies in the amount of capital which is available for the use of labor. Because of intensive use of capital, American labor can in many lines of enterprise compete with the labor of other countries. So-called "cheap" labor is cheap only in terms of the wage per day or other

¹⁰ *Journal of Political Economy*, January, 1921, pp. 78-80.

INTERNATIONAL MONEY WAGE COMPARISONS *

AVERAGE DAILY WAGE PAID IN NOVEMBER, 1924, BY A LARGE AMERICAN INDUSTRIAL CORPORATION IN FACTORIES IN THIS COUNTRY AND ABROAD



* *Monthly Review*, Federal Reserve Bank of New York, Jan. 1, 1925, p. 6.

INTERNATIONAL PHYSICAL LABOR COST COMPARISONS

TONS OF COAL PRODUCED ANNUALLY *

Country	1911		1918	
	Per Underground Worker	Per Worker of Every Kind	Per Underground Worker	Per Worker of Every Kind
United States	819	981	1134	890
Great Britain	371	300	337	265
Belgium	244	176	207	138
Prussia	381	285		
France	300	216		
Nova Scotia		555		460
New South Wales ..		560		605
India		127		126

* See F. W. Taussig, *Quarterly Journal of Economics*, Volume 39, p. 98, data secured from United States Bureau of Mines.

RELATIVE EFFECTIVENESS OF LABOR IN GREAT BRITAIN AND THE UNITED STATES *

Industry	Great Britain (1907) (per person employed)	United States (1909) (per person employed)
Blast furnaces	39 tons	84.5 tons
Steel	25 "	77 "
Tin-plate	25.6 "	100.4 "
Cement	194 "	395 "
Sugar refining	87 "	150 "
Flour milling	21 "	32 "

* *Ibid.*, pp. 102-107, and data by A. W. Flux, *Journal of the Royal Statistical Society*, May, 1924, p. 363.

RELATIVE EFFECTIVENESS OF LABOR IN JAPAN AND THE UNITED STATES *

Industry	Japan	United States
Cotton yarn	104 pounds per spinner per day	414 pounds per spinner per day
Weaving	145 yards per weaver per day	<div style="display: inline-block; vertical-align: middle;"> { 450 yards per weaver per day (plain looms) 1,100 yards per weaver per day (auto- matic looms) </div>
Money wages of weavers ..	One-fifth to one- sixth of Ameri- can wages	
Money expense per yard ..	0.375 cents ($\frac{3}{8}$ of a cent)	0.270 cents ($\frac{1}{4}$ of a cent)

* *Ibid.*, p. 111 ff. Data derived from reports of United States Tariff Commission in 1921.

IMMIGRATION TO THE UNITED STATES *

Period	Arrivals Average per Year	Period	Net Immigration Each Year (arrivals less departures)
1871-80	281,219	1909	806,000
1881-90	524,661	1911	232,000
1891-1900	368,756	1913	952,000
1901-10	879,539	1918	214,000
1911-20	573,581	1923	747,000
1924	706,896	1924	315,000

* From data prepared by the National Bureau of Economic Research.

time unit. It may be very dear labor in terms of cost per unit of output.¹¹

Economic Aspects of Immigration.—During the past century, approximately 37,000,000 immigrants entered the United States. More than 14,000,000 foreign born individuals now live in the United States. The average number of immigrants per year in recent decades is shown by the table at the bottom of page 403.

The motives for immigration in some previous periods were religious or political freedom, but in recent decades the motives have been mainly economic. The immigrant has sought to escape the cramped economic life of his home country, and to share in the comparatively liberal opportunities afforded in America. In some cases, the economic motive has been spontaneous, in others, stimulated by commercial agencies. The efforts of shipowners, of employers in this country, of agents seeking to make a commission on alien labor, of landowners looking for immigrant buyers, have probably been responsible for fully one-half of the immigration to American shores.

The source of immigration has changed with the passing years. From an economic and social standpoint, the most significant change has been that from Northern and Western Europe to Southern and Eastern Europe as the major source of our incoming alien population. The changing distribution is indicated in the following table:

SOURCES OF EUROPEAN IMMIGRANTS *

Period	Southern and Eastern (Per Cent)	Northern and Western (Per Cent)
1861-1870	1.6	98.4
1891-1900	52.0	48.0
1911-1920	77.6	22.4

* Data as compiled by The National Industrial Conference Board.

The preponderance of immigrants from Southeastern Europe in recent years has flooded the United States with cheap, unskilled laborers, who have low standards of living. It is estimated that three-fourths of the new type of immigrants are unskilled laborers. “There can be no doubt that the important cause of the increase of immigration in the last twenty-five years has been the necessity for more crude labor to work in conjunction with our labor-saving machinery and expanding capital in the development and utilization of our national resources.”¹² It is rare to find a native-born American employed at unskilled work in a big industrial plant.

¹¹ For further discussion of the comparative advantages of the United States and other countries in international production and commerce, see later chapters dealing with foreign trade.

¹² D. D. Lescohier, *The Labor Market*, p. 8.

This heavy influx of alien labor has an unsettling effect upon the labor market. The tendency has been for the supply of labor to be so greatly augmented by immigration that there has usually been an excess of laborers above the actual demand in American industries. The records indicate that from one million to three million workers are idle in the United States all the time. A flood of unskilled laborers always coming into American industries has severely influenced the relations of supply and demand in affecting the wage rates. Often the fact that a group of alien workers could be promptly secured to displace union members or agitators or strikers has enabled employers to maintain a firm and rigid discipline in their shops.

The effect of immigration on the labor market arises not merely from the excessive supply of labor, but from the irregularity of that supply. The tendency has been for immigration to expand during years of American prosperity, and the movement once under way is carried over into the first stages of a period of depression. Labor is expanded rapidly at one period, only to be plunged abruptly into severe unemployment and depression at a later period. The possibility of falling back upon a reserve supply of immigrants has made employers feel frequently that the stabilization of employment is unnecessary. "With the possibility of falling back upon immigrants, business does not plan ahead, spread out, and dovetail its work so as to utilize to best advantage the workers already here."¹³ The urgency for stabilization of employment is great. At present the tendency is for employment bureaus managed by aliens to serve as the medium between the man out of work and the job waiting for a worker. "So far as the immigrant is concerned, the private employment agency of his own racial group is still the chief means by which he secures work."¹⁴ A system of American employment agencies, either public or private, or both, appears to be indispensable if the labor market is ever to be organized to the advantage of both the employer and the immigrant. The inadequate and unscientific distribution of immigrant labor results in harmful congestion of immigrants in city districts and in certain industries. It also leaves room for much exploitation of the immigrants by unscrupulous racial employment bureaus and causes much distress and discouragement among the immigrants during the periods of unemployment. The situation also has the effect of disappointing the alien in his anticipations of American life, and of engendering disaffection toward American institutions.

One proposal which has much merit is that a Federal Commission should be established for the purpose of regulating the supply of immigrants in accord with the needs of American business. At a time when some millions of workmen are already out of work, such a commission might shut the door to further immigration altogether. At a period of prosperity, it might limit the flood of immigration in view

¹³ J. R. Commons, *Races and Immigrants in America*, p. xxvi.

¹⁴ F. Kellor, *Immigration and the Future*, p. 164.

of the probability that in a later stage of the business cycle, the new labor supply would be superfluous. Regularization of immigration would aid much in the regularization of employment and the stabilization of the labor market.

Alien labor has had the effect of lowering the wages of common labor in the United States. The long line of out-of-work aliens at the factory gate, willing to accept a wage below the American standard of living, has had the effect of driving native labor out of unskilled occupations. Cheap labor with low standards of living has been a constant menace to American wage scales. In the light of past experience, labor unions in this country have taken a stand in favor of drastic restriction of immigration. The unions consider such a restriction indispensable to the maintenance of decent living standards. Employers have often taken an opposite view, and have favored heavy immigration, on the ground that cheap labor is necessary for the development of American industry.

The attitude of both unions and employers toward alien labor has changed in one respect: The immigrant of the pre-war days was criticised for being *too docile*; labor leaders berated him for refusing to join unions or to fight for better industrial conditions; economists and publicists condemned him for accepting wages too low for Americans and for acquiescing in an inferior and degrading standard of living. But the post-war immigrant is criticised for *not being docile enough*. If he comes from Northern or Western Europe, he is likely to be impregnated with trade union or syndicalist ideas; if he comes from Southern or Eastern Europe, he is likely to be permeated with socialistic or communistic doctrines. As Commons says, "The majority of unionists are immigrants and children of immigrants from countries that know little of unionism. When once moved by the spirit of unionism, the immigrants from low standard countries are the most dangerous and determined of unionists. It is in the nature of retribution that, after bringing to this country all the industrial races of Europe and Asia in the effort to break down labor organizations, these races should so soon have wiped out race antagonism and, joining together in the most powerful of labor unions, have wrenched from their employers the greatest advances in wages."

Many aspects of Americanization are economic in their nature. The fundamentals of Americanization lie in the basic working conditions. If wages are sound, if hours are right, if factory discipline is fair and humane, if the working surroundings are wholesome—then and then only is Americanization a practicability. Night school studies in English or in technical subjects have frequently been provided by employers, with a view to increasing labor's efficiency. Americanization has often taken the form of effort to suppress radicalism and to block agitation and discontent.

The immigrant is commonly a thrifty individual. But American banks have been negligent in supplying banking facilities for his small

savings, and this negligence has left the door open to loan sharks, pawnshops, local racial leaders, and immigrant banks to thrive at his expense. The foreign born population send a large part of their savings back to their home countries. The Department of Commerce estimates that such immigrant remittances amounted to \$350,000,000 in 1923. The fact that so large a fund is sent home each year reflects the underlying intention of a large number of immigrants to return eventually to their home land. Between 1908 and 1923, 9,949,740 immigrants arrived in the United States, of which 35 per cent returned to their original homes. The degree of permanency in immigration varies widely from one nationality to another, as indicated by the following table: ¹⁵

Nationality	Per Cent of Emigration Return- ing, 1908-1923
Chinese	130
Bulgarian, Serbian	89
Southern Italian	60
Greek	46
Polish	40
English	21
French	21
German	18
Irish	11
Hebrew	5
Average	35

Restriction of immigration involves three main policies: First, laws forbidding the admission of anarchists, diseased, insane, revolutionists, etc., have been an established part of American policy. Second, in 1917, the literacy test was adopted, requiring all aliens over 16 years of age to be able to read the English language or some other language or dialect. Third, the quota law as revised in 1924 provides for the admission from any country during any one year of only 2 per cent of the number of persons born in that country who were residents of the United States according to the census of 1890. By taking the 1890 census as the basis for calculation of the quota, it was hoped to discriminate in favor of immigrants from Northern and Western Europe. The total number admissible from all countries in any one year according to this quota has been estimated by the Department of Labor at 164,667. Clearly, the quota restriction will impose a drastic limitation upon the volume of immigration of all kinds, as well as upon that part of it originating in Southeastern Europe.

The Population Theories of Malthus.—The most influential population theory has been that propounded by T. R. Malthus. Writing in the last decades of the 18th century, he discussed conditions in an England whose total population was probably well under 7,000,000. Under

¹⁵ For further data, see discussion by Secretary of Labor Davis, *Monthly Labor Review*, January, 1924.

the state of the agricultural and industrial arts then prevailing, this population was excessive. England was over-crowded. The masses suffered privation and poverty. The food supply was inadequate for so many people. It was against this background that Malthus set forth his doctrines of population.

The core of his doctrines was the principle that "population has a constant tendency to increase beyond the means of subsistence." If unchecked, this tendency results in the population's doubling itself every 25 years. But the food supply could not be increased so rapidly. It could not be made to double itself every twenty-five years. Hence, the limited increase in food supply must act as a check upon the rapid increase of population.

Arithmetically, this discrepancy between population and food supply was expressed as a difference between geometric and arithmetic progression. Population would increase in geometric progression or as the numbers 1, 2, 4, 8, 16, 32, 64, 128, 256. Subsistence would increase in arithmetic progression, or as the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9. "In two centuries, the population would be to the means of subsistence as 256 to 9; in three centuries as 4096 to 13, and in two thousand years the difference would be almost incalculable."

The checks upon the geometric increase of population were classified under two heads: the *preventive* and the *positive*. The chief preventive check contemplated by Malthus was late marriage. He held that early marriage was the temptation of every person, and that will power to resist this temptation was necessary if the size of the average family was to be limited. The chief positive checks were disease, famine, war and misery. These positive checks were the stern and cruel, but drastic correctives of population increase.

Since the announcement of the Malthusian doctrine, the population of England has increased to more than five times the population of that time. Yet the present population enjoys a larger per capita income and a higher standard of living than did the small numbers of Malthus' day. The population increased but the means of subsistence increased still more. Instead of population holding down the standard of living to the lowest level of subsistence, it permitted the standard to rise. Do these facts refute the Malthusian doctrine?

So far as the heart of the doctrine is concerned, we see no reason to interpret the events of the past century as a refutation. That population tends to press upon the means of subsistence is a principle which is well substantiated. But one factor which Malthus little emphasized came to be the dominating factor of the century. That factor was the industrial revolution and the progress in productive efficiency. Far-reaching inventions and discoveries were made. The technology of agriculture and of manufacture was perfected. The scope of transportation was expanded. The division of labor was multiplied immensely. All of these remarkable developments serve to modify an important

condition in the operation of the Malthusian principle. That condition is, *the state of the industrial arts remaining the same*, population tends to press upon subsistence. During the 19th century, the industrial arts did not remain the same. The result was that the acute pressure of population upon subsistence was suspended for the time being. As more mouths appeared to be fed, the wheat fields of South America appeared to feed them. As more bodies demanded to be clothed, the wool of Australia and the cotton of America were offered for clothing. The industrial revolution multiplied the numbers that could be supported on the island. But if the industrial arts reach a standstill, and population goes on increasing, the day of reckoning between population and subsistence approaches. One important factor which has diminished pressure of population on the means of subsistence has been the progressive improvement in production technology. Malthus lived when the industrial revolution was hardly in its infancy. If prophets had told him that England would some day support five times as great a population in better comfort, he would have scoffed at the suggestion as preposterous. But his failure to foresee the marvels of science and invention does not vitiate his doctrines. In this particular respect we may amend his doctrines, place a greater emphasis upon the importance of the state of the industrial arts, but recognize at the same time that no matter what improvements are made in the industrial arts, the specter of population always stands at the door threatening to encroach upon the means of subsistence. Inventors, scientists, and engineers may fight back the encroachment, and indeed it is only their sturdy and valiant effort which for the past century has enabled population to grow without dragging society down to the meaner levels of existence.

If we inquire why the means of subsistence cannot increase indefinitely, we have only to turn to the law of diminishing returns for our answer. Here again, Malthus did not foresee the developments of the coming century. He was thinking of England as primarily a self-feeding island. The food consumed there would have to be grown there. And under that assumption, the law of diminishing returns applied quickly and surely. But the assumption was wrong, for the source of food supply rapidly shifted to the fertile fields of foreign countries. England came to import most of her food. But the stage is now being reached where all of these virgin territories of the new world are themselves reaching the point of diminishing returns. Barring some marvelous new developments in agriculture, these rich soils will show diminishing returns in the future. Population will tend to outrun food supply. The pressure upon subsistence will threaten the comfort of the masses.

The joint influence of *the state of the industrial arts* and *the law of diminishing returns* determines the ratio between population and subsistence. A glance at the recent history of population should show that the specter of over-population is by no means eliminated. In

the year 1000, the population of all Europe probably did not exceed 10,000,000. When Columbus discovered America, the population of Europe probably did not exceed 50,000,000. In 1800, the population of Europe was estimated at 200,000,000 and in 1920 at nearly 500,000,000. The population of the whole world a century ago was about 800,000,000, whereas to-day it is more than 1,700,000,000. During the many centuries of man's existence down to 1820, his numbers had increased only to eight hundred million, and then in another century, he increased his numbers to more than double that amount. Surely here was a tendency of population to increase and to increase speedily. No one could say in light of these developments that the reproductive capacity of the race was a slight one.

POPULATION OF THE UNITED STATES, 1800-1920 *

Year	Population (thousands)	Increase by Decades	
		Amount (thousands)	Rate (per cent)
1800	5,308	.....	..
1810	7,240	1,932	36
1820	9,638	2,398	33
1830	12,866	3,228	34
1840	17,069	4,203	33
1850	23,192	6,123	36
1860	31,443	8,251	36
1870	38,558	7,115	23
1880	50,156	11,598	30
1890	62,948	12,792	25
1900	75,955	13,041	21
1910	91,972	15,977	21
1920	105,711	13,739	15
1925	114,311 (a)		

* See Harold Cox, *The Problem of Population*, p. 8.

(a) Preliminary estimate, National Bureau of Economic Research.

The population increase is a function of two variables, the birth rate and the death rate. The survival rate gives the net increase of population, i.e., the difference between births and deaths. The data above and on the following page on these variables are indicative of the population trends. The above table shows the declining rate of increase in the population of the United States. The figures include immigration, so that the rates are not strictly a measure of population increase due to domestic birth and death rates. In spite of this allowance, however, the decreasing rate of increase remains an undoubted fact. A similar tendency is also noted for leading European countries.

Although the rate of increase is diminishing, nevertheless it remains a very material rate in most countries. The birth rate has fallen, but the death rate has also fallen. If both fall in like proportion, the rate of net increase is unabated. Modern medicine and sanitation have decreased the death rate. Modern surgery and hospitalization, the progress of medical science, the improvement of medical education, have cut down the death rate remarkably. This cut in the death rate nearly matches the decline in the birth rate.

CAUSES OF POPULATION INCREASE *

Country	Year	(Number per Thousand of Population)		
		Birth Rate	Death Rate	Survival Rate
British India	1914	40	30	10
England and Wales ...	1914	24	14	10
	1921	22	12	10
Japan	1914	33	20	13
Australia	1916	27	11	16
	1920	25	10	15
United States	1919	22.3	13.0	9.3
France	1911-15	18.5	18.1	0.4
Germany	1911-15	27.5	15.0	12.5

* *Ibid.*, Chapter 1, and E. M. East, *Mankind at the Crossroads*, Chapters VIII-IX. National Bureau of Economic Research estimates in 1924 placed births per 1000 of population at 23.3 and deaths per 1000 at 11.7 for the United States.

DECLINING BIRTH AND DEATH RATES *

(Per 1,000 of population annually)

Birth Rates						Death Rates					
Year	England and Wales	France	Germany	Russia	United States	Year	England and Wales	France	Germany	Russia	United States
1871-76	35.5	25.5	38.9	50.3	35 (1800)	1870	22.4	24.4	27.2	...	...
1886-90	31.4	23.1	36.5	48.7	...	1880	20.0	22.4	25.8	35.8	...
1901-05	28.2	22.0	34.3	47.7	25.1 (1915)	1900	17.6	20.7	20.8	31.8	15 (1906-10)
1911-15	23.6	18.5	27.5	45.5	23.7 (1920)	1910	14.9	19.1	17.4	29.8	13.0 (1922)

* See E. B. Reuter, *Population Problems*, p. 146, and E. M. East, *op. cit.*, p. 267.

The causes for the decline of the birth rate are numerous. In general, we find in the United States that the more important factors influencing birth rates are as follows: ¹⁶

- a. Foreign-born families in America tend to have larger families than native stock.
- b. Negro families tend to have larger families than white families.
- c. People living in rural communities tend to have larger families than those living in urban communities.
- d. People of little or no education tend to have larger families than those of higher education.
- e. People of little means tend to have larger families than the well-to-do.
- f. People of low standard of living tend to have larger families than people of high standard of living.
- g. People having knowledge of birth control tend to have smaller families than those not having such knowledge.

In general, we may observe that the influences which tend to lower the birth rate are Americanization of aliens, concentration of population in the cities, democratization of higher education, increase in

¹⁶ The following statistical data bearing upon these conclusions are significant:

DENSITY OF POPULATION		
	Number of Inhabitants Per Square Mile *	Acres Cultivated per inhabitant Supported by Domestic Agriculture †
Germany	328.4	2.0
France	184.3	2.3
Italy	323.6	2.4
Belgium	635.2	2.2
Japan	390.3	1.0
United States	30.5	3.2
Estimated Minimum for Decent Standards of Living .....	....	2.5

AVERAGE BIRTHS PER MOTHER, NATIVE AND FOREIGN BORN (Census of 1920)	
Native	3.2
Foreign	4.0

POPULATION PER SQUARE MILE				
Year	Rhode Island	New York	Nevada	United States
1900	401	152	0.4	25.6
1920	566	218	0.7	35.5
				4.5 (1790)

PER CENT OF TOTAL POPULATION OF THE UNITED STATES LIVING IN TOWNS AND CITIES OF 2,500 OR MORE	
Year	
1880	28.6
1920	51.4

PER CENT OF TOTAL GAINFULLY EMPLOYED IN THE UNITED STATES ENGAGED IN AGRICULTURE	
Year	
1820	87.1
1910	32.9
1920	29.0

* Statistical Abstract of the United States, 1922, p. 728.
† See E. M. East, *op. cit.*, Chapter IV.

per capita income, elevation of standards of living, and dissemination of knowledge of birth control. The preventive checks upon population increase are becoming more and more effective. Malthus never dreamed that birth rates would decline to their present level. If death rates had not also declined, the race suicide of which Theodore Roosevelt and others prophesied, might have occurred. As matters now stand, the imminent danger is more from over-population than from race suicide.

The annual increase in total world population has been estimated at from 12,000,000 to 20,000,000, or a rate of net increase of from 0.7 per cent to 1.16 per cent annually.¹⁷ The average rate of annual increase in the United States from 1909 to 1924 was 1.55 per cent, or a yearly total of 1,560,000.

Problems in Population.—The economic problems arising from population increase affect every phase of economic life. Certain salient problems are here singled out for treatment, but these are by no means the only important problems in this field.

(1) When a nation reaches the point where further increase in population must lower the standard of living, it would seem to be desirable that thereafter population should become *stationary*. Dublin estimates that at present birth and death rates, it would be necessary for the average family to have at least 3.1 children, if a stationary population were to be maintained.¹⁸ Some classes are already below that average, and some are above it. If the state of the industrial arts becomes stationary, and the law of diminishing returns sets in, the time has come for a country seriously to consider the necessity for maintaining an approximately stationary population.

(2) It has been suggested that a population should become stationary when the *point of saturation* has been reached. The point of saturation may be defined as that stage beyond which additions to population will lower the standards of living. Pearl has estimated for the United States a population of 150,000,000 in 1952 and of 197,000,000 by the end of the century.¹⁹ The latter figure is probably the saturation point under present standards of living and productive efficiency. The United States Department of Agriculture has estimated the point of saturation in the United States at 300,000,000, but this estimate is based on the pre-war German standard of living rather than upon the present American standard.²⁰

(3) Some students have propounded a law of *optimum numbers* for each country. A. M. Carr-Saunders states this law as follows: "There will be, taking into account on the one hand the known arts of production and on the other hand the habits and so on of any people at any one time in any given area, a certain density of population which will be the most desirable from the point of view of return per head of popu-

¹⁷ See East, *op. cit.*, p. 67.

¹⁸ *Journal of the American Statistical Association*, March, 1925.

¹⁹ Raymond Pearl, *Proceedings of the National Academy of Science*, VI, pp. 275-286.

²⁰ *Year Book of the United States Department of Agriculture*, 1923, p. 500.

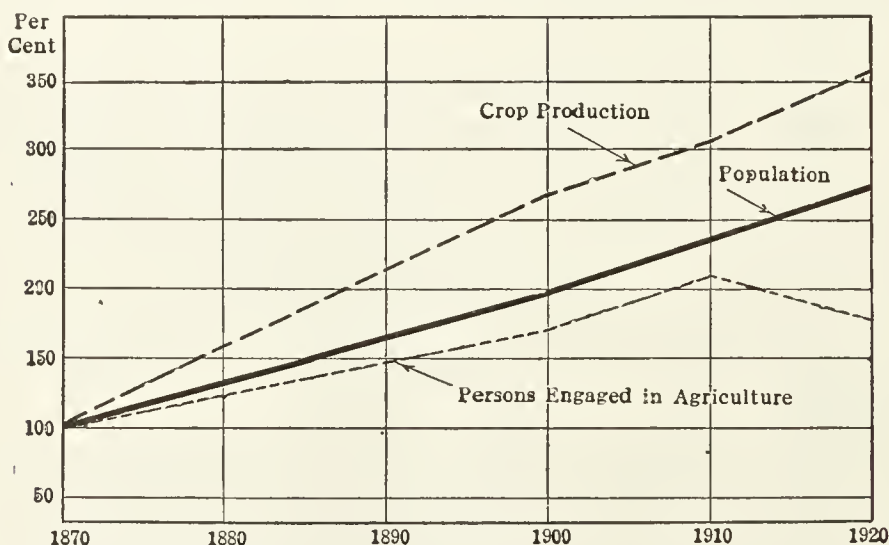
lation. There will in fact under any given circumstances always be an optimum number; if the population fails to reach that number or if it exceeds it, the return per head will not be so large as it would be if attained by that number.”²¹

The fact that such a point exists, mathematically speaking, may be granted, but it is not so certain that population tends to conform to the law of optimum numbers. At times population tends to run ahead, at times to fall behind. As a law of conformity, the proposition is unconvincing. As a mathematical concept, it is capable of being proved.

(4) The population in the United States may in the future be expected to consist *less and less of foreign-born elements*. The admission of immigrants has been drastically restricted, and the alien element in the population narrowed for the future. This policy may be expected to affect the scarcity of common labor and to increase the chances of labor for an increased wage share of national income.

(5) *The proportion of the total population living on farms is lessening*. Less than 30 per cent of the gainfully employed are now engaged in agriculture. In 1922, 1,120,000 people left the farms on account of the agricultural depression then prevailing. In 1922, 7.3 per cent of all inhabitable farm houses were vacant. The relationship between farm population, total population, and farm production is shown by the accompanying diagram:

TREND OF POPULATION AND FOOD PRODUCTION IN THE UNITED STATES,
1875-1920 *



* Yearbook of the United States Department of Agriculture, 1923, p. 463. For further analysis, see above, pp. 325-27.

(6) The concentration of population in cities steadily increases. More than one-half of the population in the United States now live in

²¹ *The Population Problem*, p. 200. This law is taken from E. Cannan, *Wealth*, p. 68.

towns and cities of more than 2,500 population. The development of *urban civilization increases the complexity* of economic organization immensely. Dependence upon trade and markets, multiplication of transportation costs, increased specialization of labor, increased expense of distributing commodities to consumers, change in political and economic ideals, greater demand for amusements and recreations, all result from the growth of the city and decline of the rural community. A new economic balance between farm and city is in process of development.

(7) The World War proved to be a drastic positive check upon population. Wileox has estimated that the direct death toll of the war was at least 10,000,000 lives and the indirect toll through plague, disease, and famine at least 20,000,000 more. A total loss of 30,000,000 lives due to the war is evidence of the human cost of war.²² The cause of the war and of this enormous sacrifice was in large part written in the over-population of various European countries. As population grew, these countries seized colonial areas, encouraged emigration, demanded new markets and new sources of raw materials. Imperialism and militarism were largely based upon the desire of governments to provide room for their expanding populations. The mad race in competitive armament was necessitated in the interest of protecting these stakes of imperialistic diplomacy. Over-population required a complex economic organization at home and abroad, and brought leading nations into conflict. The economic causes of wars largely center in the over-population of competing countries.

(8) The *quality* of population is distinguishable from the *quantity*. Quality is dependent mainly upon sound heredity. The science of eugenics emphasizes the importance of eliminating the excessive breeding of children of defectives and incompetents. Since the World War, many authorities have advanced the theory that the so-called Nordic races are superior in quality to other races. It has been urged, therefore, that we endeavor to make America a purely Nordic nation. This doctrine has not yet been supported by adequate scientific evidence. So many nations have allowed their egotism to lead them into similar self-exaggeration that careful students may well remain skeptical of the extreme claims to Nordic superiority.

Conclusion.—The means of controlling wage factors and promoting labor welfare are worthy of most earnest consideration. By increasing the labor share of product, by increasing total product, by limiting immigration, by adapting the ratio between population and subsistence, a large measure of control may be realized. Instead of leaving matters to blind fate or to automatic laws, we may well devote our energies to creative control of our destinies as laborers and as human beings.

²² See *Journal of the American Statistical Association*, January, 1922.

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CHAPTER XXII

EMPLOYER AND EMPLOYEE RELATIONS

The development of the corporation and of large scale enterprise has made impersonal many of the most important relations between employer and employee. Personal contact between the president of the corporation and the average employee is eliminated. The employee tends to become a cog in a wheel, a number on a pay roll, an abstract unit of labor, rather than a human being with sympathies, emotions, and impulses. Under these conditions, mutual understanding is likely to disappear, and mutual coöperation is difficult to create. The relations between management and men tend to become suspicious and unfriendly. The problems growing out of these relations ramify to all phases of industrial activity.

The Job.—Labor's opportunity to carry out its part in production constitutes the job. The opportunity to work and thereby to earn a living is indispensable to the laborer's life. In its present form the job is an opportunity which may be given to the laborer or taken away by powers utterly beyond his control. The laborer has no right to a job. There is no established legal responsibility on the part of anybody to guarantee the laborer a steady job. The employer may give or withhold work as he sees fit. The employer retains the right to hire and fire for reasons good and sufficient in his own eyes. The opportunity to carry out labor's function is therefore a precarious one, and is created or destroyed by powers of management above and beyond his influence or control.

To lose his job is likely to bring distress and fear to the worker and his family. Both he and his dependents face the demands of the landlord, want of food, and the keenest of social dreads and anxieties until a new job can be found. This may take weeks or months. In the meantime the state of mind and body of the worker tends toward demoralization. As stated in detail by Lescotier, unsteady employment "undermines his physique; deadens his mind; weakens his ambition; destroys his capacity for continuous, sustained endeavor; induces a liking for idleness and self-indulgence; saps self-respect and the sense of responsibility; impairs technical skill; weakens nerve and will power; creates a tendency to blame others for his failures; saps his courage; prevents thrift and hope of family advancement; destroys a workman's feeling that he is taking good care of his family; sends him to work worried and underfed; plunges him in debt."¹

¹ *The Labor Market*, p. 107.

The loss of a job may be the fault of the worker himself, or on the other hand, may arise from causes completely beyond his control. In the average industry, approximately one-half of the causes of a change of employment lie within the volition of the worker himself. Among such causes for the laborer's voluntarily leaving his job are fits of temper, mean and disagreeable foremen, unsatisfactory wages, excessive hours, no prospect of advancement, the wanderlust, bad housing accommodations, poor health, and attractive opportunities elsewhere. The other half of the changes of employment are due to the volition of the employer. Of this half, the larger proportion of changes are due to industrial depression, seasonal shut-downs, bankruptcy, new mechanical inventions. The smaller proportion are in the form of discharges due to inefficiency, unreliability, insubordination, agitation, union affiliation, etc. The causes for the worker's withdrawing from a job, or for his being dropped from a company pay roll are obviously in a very large measure psychological. Dissatisfaction, temperament, ambitions, and all the moods and impulses of both worker and employer enter into the unsteadiness of work. With surprising frequency, the shift of employment has no traceable connection with careful, deliberate, rational calculation but is due to outbursts of passion, or to the domination of fixed prejudices. In many cases the worker's quitting of the job is an act without foresight, or regard for distressing consequences to follow. There is a large group of workers whose mental equipment does not enable them to protect themselves from the rashness of blind quitting. As pointed out by Dr. H. M. Adler, "There are individuals in a community who for a variety of reasons are not able to regulate their conduct on the basis of experience."

The amount of labor turnover varies greatly from company to company, but in the aggregate attains alarming proportions. It has been estimated that on an average, in order to maintain one thousand constantly at work it is customary to employ one thousand new men during the year to replace one thousand old ones. In other words, the average rate of turnover is about 100 per cent. However, there are some plants in which the turnover runs as low as 10 to 20 per cent and others in which it ranges from 300 to 600 per cent. Taking industry as a whole, government investigations provide a basis for the estimate that to keep five million workers fully employed throughout the year 1914, there were about four million accessions and four and a half million separations, or a total of more than eight million workers changing jobs that year.

A true picture of employment, therefore, presents a stream of constant come and go, incessant hiring and firing. This extreme flux and change affects most severely about one-half the workers. The other half endeavors to stick to the job. For the latter employment is something steady and permanent. They stay with the same company for as large a portion of their lifetime as economic conditions will permit. The high rate of turnover occurs because of the excessive shifts among the

other half of the workers. For them a job is an affair of a few weeks or a few months. Due to their own unfitness they are fired, or due to their discontent at conditions within the plant the job becomes irksome almost as soon as it is taken. This half of the laboring population is on the march from plant to plant a large share of the time. For them employment is an unstable, uncertain, fickle, temporary affiliation.

The cost of labor turnover is severe. The cost to the employer in terms of dollars and cents ranges from \$25 to \$200 or more per employee. For employees the loss of earnings during unemployment, the expense and difficulty of obtaining new jobs, the low wages while learning a new job, the greater exposure to accident in unfamiliar work, the cost of moving the worker's family, the loss of skill by the shift of occupation and the demoralization and discouragement from idleness are tremendous.

Attempts to reduce labor turnover have been frequent during the last decade. It was formerly supposed that the ready mobility of labor was thoroughly useful because it evened up the supply and demand of workers in various communities and served to adjust the labor market to business requirements the country over. In recent years, however, this mobility of labor has come to be looked upon as an undesirable burden to both the employer and the employee. At first, employers sought to reduce turnover by special devices contrived almost exclusively with reference to the turnover problem. Gradually this viewpoint has been abandoned and in its place has arisen the belief that turnover is an index of the whole policy of labor management of the corporation. No single trick or device has magic powers to reduce turnover. All phases of the corporation policy need to be placed upon a sound footing, and thereafter turnover will take care of itself. There are certain phases of corporation policy which have more importance in reducing turnover than others. To quote Slichter, "The foremost important features of a job to the average factory workman are:

"1. The wages.

"2. Its steadiness.

"3. Its psychical and nervous demands upon him.

"4. The hours.

"As these four overshadow all other features of the job in importance to the workman, making the work attractive in these four respects must necessarily form the foundation of attempts to reduce the turnover. . . . *Men will not remain at work because of incidental attractions when matters of fundamental importance are unsatisfactory.*"² Under favorable conditions turnover can be reduced, so most authorities agree, to approximately a 20 per cent basis.³

² *The Turnover of Factory Labor*, p. 251.

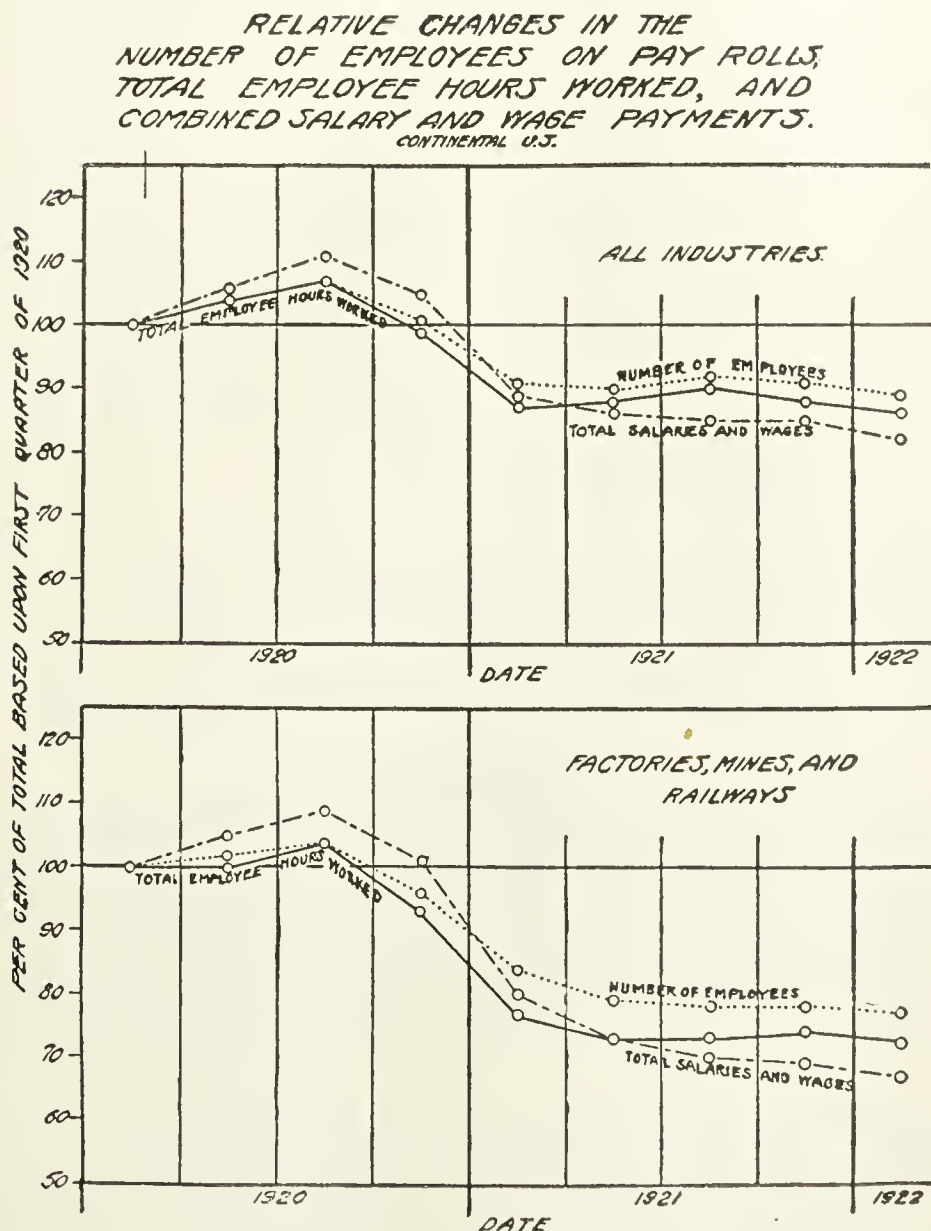
³ Lescohier, *The Labor Market*, p. 116.

The unsteadiness of the job has the most intimate bearing upon industrial morale and upon the degree of loyalty existing between the employer and the employee. Unsteadiness of employment operates as a direct cause of disloyalty to the company. The worker feels that wages, hours, and working conditions are so unsatisfactory that he is ready at any moment to leave the job. If he does not leave on his own accord a foreman or superintendent may fire him for reasons good or bad. Under these conditions he becomes the victim of a weak, and often vicious industrial morale. It is next to impossible to feel loyal to the company because he receives too many indications that the employer feels no sense of loyalty to him. The employer stands ready to close down his factory when business conditions are poor regardless of the discomfiture among his workers, and with that understanding in the worker's mind, it is but natural for him to be disaffected and resentful.

Among a very large group of employers, this state of uncertainty and unsteadiness of employment is looked upon as a valuable weapon over the employees. If the worker can be kept in a state of fear and dread of being fired, it is thought that he will be spurred to efficiency and obedience. The right of firing, with loss of pay, is supposed to be essential in order that men may have an incentive to work efficiently. The knowledge that a line of applicants is standing at the factory gate eagerly asking for jobs is conceived as an intimidating force. The discipline of fear is hung over the workers' heads. The attempt to appeal to the emotions of fear and to establish industrial discipline upon the basis of worry, anxiety, privation and distress is, however, definitely repudiated by the more progressive business men. Fear may drive men to work, but work done under such compulsion has neither the spirit nor the efficiency which is possible of realization when other motives are brought out. As Cooley remarks, "Fear is a poor motive, because it does not evoke those energies which are bound up with ambition, sympathy, social imagination and hope." To quote F. J. Miller in a presidential address to the American Society of Mechanical Engineers, "The old driver method of management will no longer do. . . . The workers of every country have acquired a new status. Realizing the great difference between a body of employees all enthusiastically co-operating, and a body of employees rendering only such service as they think necessary to hold their jobs, these men [engineers] are giving this problem their best attention."

The fear discipline holds the mass of workers to a low margin of safety. At any minute they are in danger of losing the opportunity to work, and with that they lose the opportunity to livelihood and security. This condition represents what has been called "a pain and deficit economy," that is, an economy in which the worker is always on the verge of unemployment and privation. The never-ending uncertainty under the fear régime brings a heavy human cost. It means that workers have at painfully frequent intervals to "turn to new occupations, form new habits, and think new thoughts." As Cooley

says, "The principle that human character deteriorates under irregular and uncertain employment is an old one and, I believe, undisputed."⁴



In the job is centered all that means most in the life of the working man. It is his opportunity to be a useful member of society. It is his opportunity to develop the capacities which make him a human being. For him it contains the means to all that life holds worth while. It is,

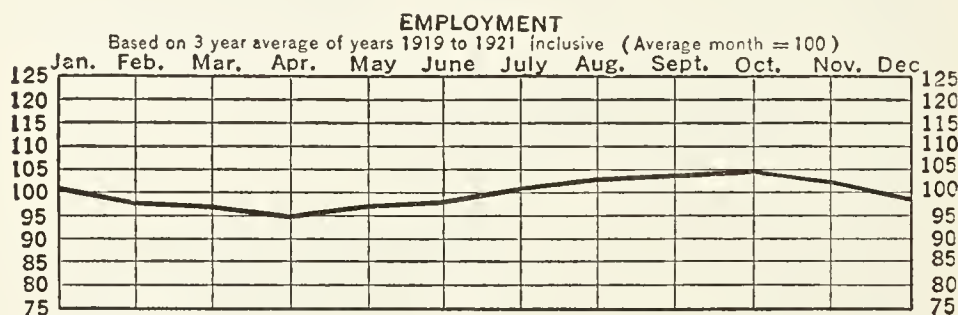
⁴ Cooley, *Social Process*, p. 184.

in short, for the worker the very life of life. The fear discipline which is associated with unrestricted right to hire and fire and with irresponsible power to intimidate and coerce men by threats of unemployment strikes at the heart of the worker's life. Progressive employers have discovered that the fear discipline can be moderated with immense human gain to the workers and with a corresponding benefit to the employers in terms of productive efficiency and sound industrial morale.

Fluctuations in Unemployment.—Even in good times, a considerable percentage of industrial workers is unemployed. Approximately 5 per cent of the labor supply is unemployed under conditions of prosperity. In periods of depression, upwards of 20 per cent is unemployed. Taking the average of good and bad years, probably 10 per cent of labor is constantly out of work. In the United States, this means that more than one million workers are unemployed in good times and more than four million workers unemployed in bad times.⁵ A certain normal minimum of unemployment is characteristic of modern industry. It is due to the process of making adjustments and transitions, and persists even during the era of prosperity.

The cyclical fluctuations in employment are indicated by the diagram on page 421.⁶

Intermingled with the cyclical fluctuations of unemployment are seasonal fluctuations. In such industries as coal mining, building, or millinery, the employment at one portion of the year may be only one-third or one-half of the employment at another portion. Seasonal fluctuation in railway employment is shown in the following diagram:⁷



Such seasonal fluctuations are a heavy burden upon labor and upon business. Although long looked upon as inevitable, they have more recently come to be viewed as in part remediable. Seasonal employment has been greatly curtailed by many individual factories through the adoption of special policies. Such policies include the spreading of

⁵ For data, see W. I. King, *Employment, Hours, and Earnings in Prosperity and Depression*, p. 143; Shelby M. Harrison, *Public Employment Offices*, pp. 8-9; The National Industrial Conference Board, *The Unemployment Problem*, Research Report No. 43, p. 34; W. T. Layton and others, *Is Unemployment Inevitable?*, pp. 6-7.

⁶ W. I. King, *Employment, Hours, and Earnings in Prosperity and Depression*, p. 80.

⁷ W. C. Mitchell and others, *Business Cycles and Unemployment*, p. 214.

orders over the year more evenly, manufacturing to stock, and diversification of the products of the concern. A technique for leveling out the seasonal extremes has been developed, and is available for the use of those business concerns desirous of sharing in the benefits of stabilization.

The most severe form of unemployment is that due to cyclical fluctuations. The problem of cyclical employment may be approached from various angles. First, it may be approached from the angle of general control of the business cycle. This involves control of finance and production. If finance and production are stabilized, employment will be likewise stabilized as an automatic result. *Prevention* of cyclical undulations is a primary necessity.⁸ Second, the problem may be approached from the angle of *unemployment relief*. The forms of relief are charity, doles, and unemployment insurance. By far the most desirable plan of relief is insurance. Unemployment insurance may be financed by the employees, or by the employers, or by both jointly, or by the government. Joint responsibility by employer and employee seems desirable. Financial responsibility of the employer acts as an incentive to prevent unemployment from occurring in the first place. Responsibility of the employee means that labor sets aside a reserve in time of good income to be used as an emergency resource in time of poor income. Unless insurance is available, unemployment imposes a cruel and heavy burden upon the mass of workers.

Third, cyclical unemployment may be approached from the standpoint of eliminating idleness. The planning of construction, both by government and by private industry, may be timed with a view to taking up the slack in employment when dull times appear. The long-range planning of construction work tends to level out the peaks and the valleys of employment. Fourth, the problem may be approached from the angle of helping workers to find jobs. A certain amount of work is always waiting for the right laborers, and a certain number of laborers are always looking for jobs. Some unemployment is due to inability to bring job and man together. This task is the function of employment offices. There are strong reasons why public employment offices should be maintained by state and federal governments, supplemented by private offices.

Four main lines of effort, are, then, called for by the problem of cyclical unemployment. These are: prevention of cyclical fluctuations of business, relief of unemployment once it has occurred, elimination of unemployment by long-range planning of public and private construction, and aiding workers to find jobs by adequate employment office facilities.

Hours of Work.—The hours of work raise four important economic problems. These may be enumerated as follows:

1. The effect on productive efficiency of labor.
2. The effect on wages.

⁸ See detailed discussion in later chapters on the business cycle.

3. The effect of the extra leisure of short hours on consumption.
4. The effect upon the health of the worker.

Trade unions claim that decreased hours yield increased production per working day. This seeming paradox is cleared up by the explanation that the ten- or twelve-hour day causes fatigue and therefore undermines efficiency, whereas the eight-hour day preserves vigor and therefore conduces to maximum efficiency. There have been numerous instances where increased production has resulted from the eight-hour day. For instance, the United States Tariff Board reported in 1911 that the reduction of hours from twelve to eight in the paper industry, with an increase in the hourly wage rate of 50 per cent, had reduced the labor cost per ton of manufacture from \$4.35 to \$3.73. The claim of increased efficiency would not however be substantiated in all industries. In many instances, the promised increase of efficiency has failed to materialize. On the average, the shorter work day probably does not lessen production. Nevertheless it is a significant fact that the physical output per employee engaged in manufacture in 1920 was only 10 per cent higher in 1920 than in 1900. The average factory worker, in spite of better capital equipment and more horsepower available, was turning out only 10 per cent more physical product annually in 1920 than twenty years earlier. This was a very slow rate of increase in physical productivity per worker, and is in some measure attributable to the introduction of the eight-hour day during this period. In the mass, therefore, the shorter working day *did not cause a decrease* in productivity, but *slowed up the normal rate of increase*.⁹

The effect upon wages is difficult to measure. The unions have usually demanded higher wages per hour, so as to yield at least as large a daily wage as before. This claim rests upon their assertion that shorter hours increase efficiency. If efficiency is increased, then management can afford to pay at least the same daily wage as before, and often more than that. We have already noted that during this period when shorter hours were being adopted, real wages were increasing very slowly if at all. On the average, the shorter hours may have influenced the slowing up of increases in real wages. On this point, however, there is no evidence, and the inferences drawn here are merely suggestive. From the standpoint of management, it sometimes appears preposterous to pay labor a "twelve-hour" wage for working an "eight-hour" day. The change in hours, however, has compelled management to invent ways of increasing the efficiency of labor. The effect of the shorter day upon product seems to have depended mainly upon the capacity of management. *Where management is alert, modern, scientific, progressive, the shorter day has usually been consistent with both higher productivity and a higher wage.*

⁹ See above, p. 48, for indexes of physical output per employee. For further illustrations of increased output under shorter hours, see *The Case for the Shorter Work Day*, prepared by Felix Frankfurter, Volume II, pp. 636-819. Complete statistical verification of this point is not available.

The shorter working day thrusts upon the laborer from two to four extra hours of leisure. The period available for recreation or for dissipation has been materially lengthened. This change raises a serious problem in consumption. How can the wants and choices of labor be guided into useful activities and away from vice? Many employers have opposed the idea for the very reason that the extra leisure may lead to drunkenness, vice, and demoralization. The danger lurking in this situation requires the attention of governments, civic organizations, educational institutions, community recreation committees, labor unions, and all persons interested in social welfare. The formation of labor folkways making for a better appreciation of art, better recreation, better education, better social amusements, is of pressing importance.

The effect of shorter hours upon the health of the worker likewise raises a problem in consumption. The monotony of long hours entails a dreary and dull existence for masses of laborers. Shorter hours reduce fatigue, improve health, and make possible a greater enjoyment of life. From a human viewpoint, the case for shorter hours of work has been irresistible.

Fatigue in Industry.—From the standpoint of fatigue, the proper length of day for each industry is a matter for scientific determination in that industry. In some industries a forty-four-hour week would entail greater fatigue than would a fifty-four-hour week in other industries. The present differences are, for the most part, not scientifically determined.

The decline in working hours from 1909 to 1919 is shown by the following table:

WAGE EARNERS IN MANUFACTURING ESTABLISHMENTS WITH SPECIFIED
NUMBER OF HOURS *

Hours a Week	Per Cent of Total	
	1909	1919
44 and under .....	..	12.2
48 and under	7.9	48.6
Between 48 and 54	7.3	16.4
54	15.4	9.1
Between 54 and 60	30.2	13.7
60	30.5	9.1
Between 60 and 72	5.2	3.0
72	1.8	
Over 72	1.7	
Total	100.0	100.0

* United States Census of Manufactures.

Many students have contended that the solution for the problem of fatigue is the elimination of automatic machinery. Such a proposal

appears futile, since the automatic machine is an indispensable means of increased production in modern industry. The best cure for monotony and dullness is often not less machinery but more machinery. The processes of production which involve great muscular exertion under high temperature, or in an atmosphere saturated with obnoxious gases, can be reduced to automatic treatment with great advantage to the laborer. A careful investigation of steel manufacturing processes has shown that formerly men were on the twelve-hour day, but worked only six or seven hours of that period. During the remainder of the period the workers were waiting for various processes to be finished. Now, with machinery and science in control of the blast furnaces and the conveying operations, the hard, gruelling labor is reduced to a minimum and men are responsible for watching and guiding, by the manipulation of levers and the pushing of electric buttons, the same processes in the making of steel. The observations of T. N. Carver led to the conclusion that the automatic machinery for the manufacture of shoes imposes less monotony and drudgery upon the machine operative than was formerly experienced by the old-fashioned cobbler laboriously making a single pair of shoes. With adequate regard for such facts, it remains true, however, that the general consequence of the automatic mechanical principle has been a marked increase in monotony for laborers.

Much of the mechanical process when carried on automatically makes unnecessary a high degree of skill or ingenuity on the part of the operative. The wide studies of R. F. Hoxie disclosed that "the workman no longer knows his trade as he did under the handicraft system. Modern capitalistic and machine industry has progressively specialized him . . . till now the average workman knows only one or a few minute processes connected with any enterprise and has no means of broadening his knowledge." In cases where this tendency reaches its more extreme development, the worker's duty in standing at the machine is so simplified that even the most ignorant workers cannot err. Such machines are termed "fool proof." Recognizing this fact, some scientific managers have claimed that many operations can be performed most efficiently by workers who in their temperament and intelligence most nearly resemble the ox or the gorilla. It has been found that for many processes the mentally dull,—even the mentally deficient—are the best operatives. It has been estimated that perhaps fully one-half of the industrial processes can be carried through effectively by those who have had no vocational training. The human consequences are suggested by C. H. Cooley as follows: "Men, women, children, find themselves required to work at tasks, usually uninteresting and often exhausting, amidst dreary surroundings, and under such relations to the work as a whole that their imagination and loyalty are little, if at all, aroused. Such a life either atrophies the larger impulses of human nature or represses them to such a degree that they break out from time to time in gross and degrading forms of expression."

Long hours under modern conditions of production generally result in injurious fatigue. "The problem of hours has undergone a fundamental change through the introduction of large scale factory production and the growing concentration of our population in cities. Men and women can work relatively long hours at work which is interesting, which calls upon their various energies, which gives some opportunity for creative self-expression. Work which is repetitive, monotonous and conducted under the confining indoor conditions of even the best industrial plant, especially where the plant is located at a distance from the homes of the workers, makes much more exacting physical and nervous demands."¹⁰ The productive process imposes upon the delicate nervous and physical mechanism of the human operator speed of motion, monotony of operation, distraction of noise, dread of industrial accident, fear of bosses and lack of interest, all of which accelerate the accumulation of waste products in the body, the exhaustion of vital energy, and mental and nervous fatigue.

Tests applied to many industries have demonstrated that fatigue is a cause of increased accidents. The dullness of mind, the tiredness of nerve, destroys the alertness and quickness of reaction which is necessary for a "safety first" operation of many types of machines.¹¹ Moreover, fatigue makes the worker excessively liable to nervous breakdown, to morbidity and moodiness, and more susceptible to disease than he would otherwise be.

In addition, fatigue brings the worker to such a depressed physical and mental state that it is difficult for him to enjoy the leisure hours at the end of the day's toil. When he is too tired to play, too deadened to read, too fagged out to benefit from recreation, his leisure hours lose a large part of the value which they should contain. Fatigue unfits the worker to enjoy leisure and to do justice to his responsibilities of citizenship.

Dr. F. S. Lee sums up the experience of recent years in these words: "If a man is worked beyond his physiological limit, he is incapacitated for his duties to his family and to society. The history of labor has demonstrated this abundantly, and the experience of reducing the hours of labor has almost universally been followed by marked moral and social improvement, such as is shown by decrease in intemperance and crime, improvement in living conditions, greater efforts toward education, greater intelligence and greater industrial efficiency—all this in contradiction, not only to the vivid predictions of disaster pronounced by active and unprincipled opponents of the change, but to the fears of those who were well meaning but timid."¹²

Fatigue has a marked effect on productive efficiency. The British Health of Munition Workers Committee found that for women engaged

¹⁰ President's Second Industrial Conference Report, 1920.

¹¹ See Goldmark, *Fatigue and Efficiency*.

¹² *Science*, 44:733. Also see Goldmark, *Fatigue and Efficiency*, pp. 279-283.

in certain forms of lathe work a "fifty-hour week yields as good an output as a sixty-six-hour week and a considerable better one than a seventy-five-hour week."¹³ Investigations of cotton manufacturing indicate that between fifty and fifty-six hours per week secure the maximum efficiency in that industry. The most productive length of working day is therefore a matter of scientific ascertainment. In some industries the fifty-four-hour week has evoked maximum production; in others, the forty-four-hour week.¹⁴ The twelve-hour day has, practically without exception, been found subversive of maximum production. Insistence must be made that not guesswork, nor sentiment, is adequate to decide for any particular branch of work what is the most effective working period. Scientific measurement is the only adequate means of finding the proper period, although it must be conceded that in actual practice bargaining power plays a primary part.

The relation between shortened hours and increased efficiency is summarized by H. B. Drury, after a careful study of the experience of several American steel companies with long and short work periods. He concludes that, "The mere change from twelve to eight hours in an industry where everything centers around huge machines and furnaces is simply an opening of the door for greater efficiency, not a consummation of it. What is necessary if the industry is really to get what it should out of the shorter day is a thorough-going reorganization. The occupation must be changed, the spirit of the men, the type of foremen. What the introduction of the three-shift system does is simply to open up a new country. . . . But to harness this new energy, as to develop a new country, will take time."

Progress in fatigue elimination has come about by a number of different avenues. The pressure of labor unions for the eight-hour day by collective bargaining was the original stimulus behind the movement. State legislation has fixed hour limits for women and children very widely, but only in comparatively few cases for men. The eight-hour day was established for the railroads by Congressional statute in 1916, and in 1921 more definitely applied by the Federal Railroad Labor Board. The extreme hazards of the mining industries have led most of the states in which mining is an important industry to limit working hours to eight per day. In a number of cases the voluntary action of the employer has led to the shorter working day. Scientific management and personnel administration have given valuable study to the problem and much encouragement to the movement. At the same time, rest periods have been interspersed in the day's work as a means of preventing undue fatigue and maintaining maximum efficiency. Adequate length of meal times, regulation of night work, granting of Saturday half-holidays and of legal holidays, allowance of one day's rest in seven, and assurance of annual vacations have all been adopted in a great

¹³ Ministry of Munitions, *Health of Munitions Workers Committee*, 1918, p. 35.

¹⁴ See Brooks, *Labor and the New Social Order*, p. 250. Also Goldmark, *Fatigue and Efficiency*, p. 174.

many industries under the stimulus of the same agencies as brought about a reduction in the length of the working day.¹⁵

The net outcome of the whole movement has been a reduction of the human cost of industry without a reduction in productive efficiency.

Environment.—The environment of the laborer comprises all the external influences upon his body and mind. The worker spends from one-third to one-half of his waking life within the working environment. The influence of this environment upon his moods, his bodily health, and his human well-being is profound. Good wages without a favorable environment are futile. Reduced hours in unsanitary surroundings are of little avail. More stable employment if the employment conditions are unsafe for life and limb is a limited gain.

What is involved in environment? What is at stake? For one thing, the safety of the worker. In a recent address, the President of the American Society of Safety Engineers put the case comprehensively:

“There are killed accidentally in the United States each year about 70,000 people, or nearly 20,000 more than the total battle deaths and subsequent deaths from wounds in our army during the entire European War.

“Of the wage earners in this country, over 700,000 each year lose members of their body or are so seriously injured by accidents as to be incapacitated for an average of four weeks each.

“The total economic waste from casualties in the United States amounts to probably \$800,000,000 per year, with untold privation and suffering entailed.

“About 90 per cent of this yearly casualty expense, or \$720,000,000 is caused by accidents that are preventable by engineering provisions. It is not claimed that even a large portion of the total casualties are preventable by engineering provisions—only 7 per cent; but it is this 7 per cent which is preventable by engineering provision that causes the \$720,000,000 casualty expense.”

With the development of high power and high speed machinery, the network of electric currents, complicated chemical processes, the use of compressed air, the presence of dangerous gases, acids and dusts in productive processes, extremes of temperature and humidity, improper ventilation and unsanitary surroundings, night work and inadequate lighting,—with all these accompaniments of the modern economic process, the hazards and risks to the worker have mounted high. The highest death toll is exacted in the mining industry, with railroading, electric light and power industries ranking in close proximity.

For the most part, a remedy for such hazards has come through legislation, state and national. Labor unions have brought pressure to bear, and a Safety First movement voluntarily adopted by employers has accomplished much. However, it remains true that for a considerable portion of industrial establishments, considerations of safety and health

¹⁵ See Commons and Andrews, *Principles of Labor Legislation*, 1920, pp. 221-224, and Spaeth, *Industrial Management*, February, 1920, p. 1921.

have proved to have only a secondary appeal. For that portion, legislative compulsion is the only adequate guarantee of even minimum safety and health conditions.

Many pioneer employers have gone far beyond considerations of mere safety and health and have set about making the working environment positively attractive, comfortable, stimulating. The plants are surrounded with well-kept lawns or beautiful parks. Landscape and building architecture is pressed into service. Carefully painted interiors, neatness and cleanliness in the care of buildings and the arrangement and upkeep of machinery, abundant window space, scientific shading and illumination, a medical staff with doctors, dentists and psychiatrists, hospital and dispensary facilities, playgrounds, gardens, rest rooms, libraries, company stores, gymnasiums, night schools, even universities,—these are a few of the improvements of environment which, all or in part, are taken up already by an imposing list of companies.¹⁶ The plan in such companies is linked with considerations of productive efficiency, workers' comfort, plant morale and loyalty, and a general spirit of happiness, prosperity and contentment in the whole working program. The gap between such best kept plants and the worst kept plants is startling and significant.

An important consequence of an environment of this improved type lies in the fact that it offsets in a real measure the monotony and fatigue of the production process. The handling of repetitive machinery may be made less monotonous by surrounding the operator with pleasant and stimulating factory conditions. Fatigue is in a measure relieved by clean, artistic, healthy workrooms. The spirit of the worker cannot rise above the tone of the plant yards, the lighting system, the mechanical arrangements. But if the laborer has a pleasant place to work in, his spirit, interest, morale and efficiency tend to improve. R. A. Spaeth puts the matter in this way: "When working conditions are standardized and we have the best of light and heat and ventilation; when all workers, men and women, have recess periods and properly adjusted, comfortable chairs; when plants are equipped with cafeteria in which workers buy an occasional plate of soup instead of the more popular pie and ice cream; when the labor unions and managers alike insist upon physical examination of all employees; when job analysis and tests for physical, physiological and psychological fitness once get on speaking terms; when the industrial engineer stops fooling himself by comparing task setting with astro-physics and appreciates that his open sesame is not the stop-watch but the square-deal—then and not till then, will the question of fatigue no longer be of such moment as it is generally considered."¹⁷

Power and Status.—In recent decades, labor has emphasized the importance of power and status. Its multitudinous separate demands

¹⁶ Corporations which have tried out these constructive devices include the National Lamp Works, the National Cash Register Company, the Goodyear Tire and Rubber Company, the Endicott Johnson Company, the Eastman Kodak Company and the Procter & Gamble Company.

¹⁷ *Industrial Management*, May, 1920, p. 411.

are related to one central movement,—one which comprehends the various individual claims, and gives them unity and coherence. This dominating objective of labor is a new recognition in industry.

The transition to the modern industrial organization, which developed to serious proportions during the middle of the nineteenth century, gave to the worker a status of obvious inferiority. He became a hired hand in the factory and railroad and mine, with no material control over the working conditions which decided the destiny of his life. The régime of machine production denied to the worker a share in the control of the raw product, or of the machinery for production, or of the rewards for work, or of the amount of work to be done per day, or of the conditions under which work had to be done. The labor problem now is at bottom an effort to win a share of control in all these matters which directly affect the worker's life. It has been said that "the root evil of the present industrial order is that it affords to the ordinary worker in industry no means of expression and no chance of responsibility or active citizenship." The labor movement is primarily committed to the removal of this root evil, and to the achievement of a status of influence, responsibility and dignity.

The World War served to accelerate the movement. The worker was definitely told that he counted and counted vitally in winning the war. The workshop was painted as the second line of defense, and as no less important than the front line trench. The worker was told that the war was a struggle to make the "world safe for democracy." In his mind and his experience, the world often nearly coincided with his workshop, and to him, therefore, the slogan meant that the war was to make "industry safe for democracy." Such hopes stimulated the worker's impulses of self-assertion and self-expression, and set loose a tide of human energy in the direction of more control over the machine régime. Secretary of Labor Wilson hinted at the phenomenon in these words: "Both sides must realize that money and hours are but incidents in the fight. . . . The real thing which is being fought over by employers and wage workers is self-respect. The employer feels that he cannot give up for fear of losing his self-respect and prestige; while the wage workers feel that they cannot give up for fear of losing their self-respect. . . . When employers will give as much thought to studying the sentiments which control life as to studying materials, machinery, law, and other factors, then we shall be on the road to industrial peace."

This inner change goes to the very foundations of industrial society. Surface demands for new wages, new hours, new treatment, are concrete signs of the fundamental thing itself,—a new assertion of the worker's dignity and power. In this respect there has been an institutional and spiritual change going on in social and industrial life. The mechanical facts of the working world have in great measure outrun the traditional ideas, principles, and organization for their direction and control. The facts of automatic machinery, uninteresting toil, fatigue, long hours, bossy foremen, unreliable wages, advertised profits,—these are beyond

control by the traditional ideas of individual action, unrestricted managerial power, unbridled freedom of contract, individual bargaining, non-consultation between employer and employee, and "business is business." At least, they are not controlled to the satisfaction of the worker. Out of this maladjustment between the mechanical facts and the traditional principles of industrial government have grown demands for new principles of industrial control,—that is, industrial self-control. The outcome has been the formulation of a new status for the worker. The new ideas call for group action, modified managerial power, collective freedom of contract, organized bargaining, joint conference between employer and employee, and industrial self-expression. Whatever individuals may think of the soundness or viciousness of the new conceptions, they are in our midst, at any rate, and are the real influences to be reckoned with in any serious reflection upon labor's part in production.

TOTAL MEMBERSHIP OF AMERICAN TRADE UNIONS *
(1897-1923)

Year	Membership	Year	Membership	Year	Membership
1897	447,000	1906	1,958,700	1915	2,607,700
1898	500,700	1907	2,122,800	1916	2,808,000
1899	611,000	1908	2,130,600	1917	3,104,600
1900	868,500	1909	2,047,400	1918	3,508,400
1901	1,124,700	1910	2,184,200	1919	4,169,100
1902	1,375,900	1911	2,382,800	1920	5,110,800
1903	1,913,900	1912	2,483,500	1921	4,815,000
1904	2,072,700	1913	2,753,400	1922	4,059,400
1905	2,022,300	1914	2,716,900	1923	3,780,000

* Leo Wolman, *The Growth of American Trade Unionism*, p. 33.

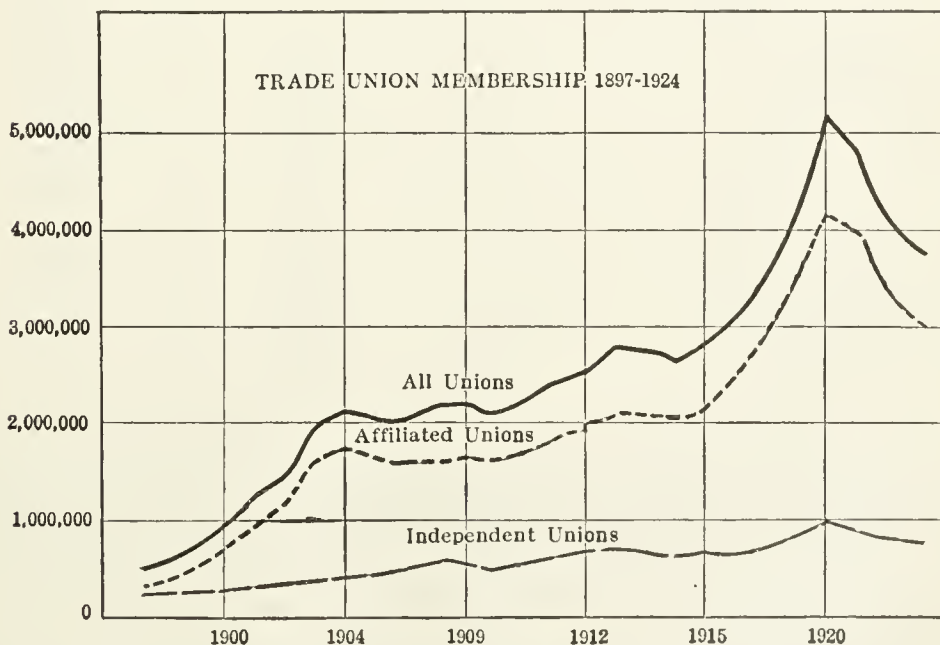
A great obstacle in the path of these aspirations for a new labor status is the defects, excesses, and abuses of labor organizations themselves. Their frequent abuses of power; their strikes in defiance of the public need; their walking delegates', union organizers' and union leaders' frequent lack of self-discipline and of a due regard for the legitimate interests of employers and the public; their occasional acts of violence; their reluctance to surrender policies for restricting production; their tendency to harass business with restrictions and regulations; their rash demands in many collective bargaining conferences; their occasional repudiation of contracts with employers,—all need to be corrected before the public or the employers will be willing to trust labor with the coveted status of power. All of the excuses and explanations for such abuses which can be conceived of by the best labor apologists are practically futile as a means of convincing the rest of the economic community that a new status of labor power is safe. The highest ambitions of labor will certainly be opposed and thwarted in

countless ways by the public as well as employers, until labor accepts seriously the obligation to eliminate the excesses and abuses which are now all too prevalent in labor organizations.

Unions.—Membership in American trade unions grew from 447,000 in 1897 to 3,780,000 in 1923. This is a total increase during the period of 745.6 per cent, and an annual average increase of 27.6 per cent. The growth of unionism is reflected in the table on page 432.

The volume of membership responds closely to the fluctuations involved in business cycles. The chief increases occurred in periods of prosperity; the chief losses occurred during periods of depression. From 1915 to 1920, the gain in membership was 2,503,000, but in the succeeding three years of depression there was a loss of 1,330,800. In spite of severe losses, however, the unions retained their vitality and vigor, and a permanent membership of nearly 4,000,000 workers. These figures show a persistent though uneven growth in unionism in the United States. The trend of growth for all unions, for unions affiliated with the American Federation of Labor, and for independent unions, is shown in the accompanying diagram:

THE TREND OF UNIONISM IN THE UNITED STATES, 1897-1923 *



* Wolman, *The Growth of American Trade Unionism*, p. 63.

Even though unions have grown rapidly, nevertheless they still comprise only a minority of wage earners in the United States. The following estimates exclude wage earners in agriculture, since no serious effort has been made to unionize farm workers.

Year	Total Wage Earners, Excluding Agriculture	Trade Union Membership	Per Cent Organized *
1910	19,262,941	2,101,502	10.9
1920	23,480,077	4,881,200	20.8

* Wolman, *The Growth of American Trade Unionism*, p. 44.

Only about one-fifth of the wage earners eligible to membership in unions actually have become permanent members. The percentage organized varies, however, from trade to trade. In certain trades the majority of workers are organized. In others, scarcely any are organized. These variations are shown in the following table:

PER CENT OF WAGE EARNERS ORGANIZED IN MAJOR DIVISIONS OF INDUSTRY,
1920 AND 1910

Division of Industry	Per Cent Organized	
	1920	1910
Extraction of minerals	41.0	27.3
Manufacturing	23.2	11.6
Transportation	37.3	17.1
Building trades	25.5	16.4
Stationary engineers	12.4	4.6
Trade	1.1	1.0
Professional service	5.4	4.6
Clerical occupations	8.3	1.8
Public service	7.3	2.5
Clothing manufacture	57.8	16.9
Water transportation	85.5	28.9
Steam railroads	57.5	23.5
Brick and stone masons	50.0	39.1

The contrast is striking between water transportation with 85.5 per cent organized, and retail and wholesale trade with 1.1 per cent organized. Mining, manufacturing, and transportation have been relatively well organized. The industries which come most completely under the machine régime and the money economy lend themselves most readily to union organization.

Women increased their membership in unions fivefold between 1910 and 1920. However, even with this increase, only 6.6 per cent of all women gainfully employed were organized. Proportionately, men are about three times as thoroughly organized as women.¹⁸

The American Federation of Labor relies for support mainly upon the national and international unions which hold charters of affiliation

¹⁸ Wolman, *op. cit.*, p. 86.

with the Federation. In 1921, there were 110 of these nationals and internationals, each confined to some particular trade or craft. These larger trade groups were composed of 36,247 local unions, each paying a per capita tax for the support of the international union. In addition to these locals, there were 941 locals affiliated directly with the American Federation of Labor. Their direct affiliation is necessary because their membership is not great enough to warrant an international charter. In 1923, about 81 per cent of the membership of all unions were affiliated with the American Federation.

The most powerful outside union groups are the Railroad Brotherhoods and the Amalgamated Clothing Workers. The Brotherhoods gained their original strength as mutual insurance societies. They are commonly referred to as the *aristocrats* among unions, because of their effectiveness in bettering wages and working conditions. Long apprenticeship tends to limit the number of qualified members, and thus aids collective bargaining power. They have refused to affiliate with the American Federation largely because they have wished to avoid the danger of becoming embroiled in sympathetic strikes and boycotts. The Amalgamated is an industrial union, that is, it contains members of many different crafts in the clothing industry. Members are drawn heavily from the newer immigration, and the union leaders have voiced a radical social outlook. The union anticipates that its experience in collective bargaining will eventually "put the organized working class in actual control of the system of production and the working class will then be ready to take possession of it."¹⁹

The labor movement signifies the development of constitutional government in industry. The political rights of the citizen have given rise to a demand for economic rights. The rights of an economic citizenship are the objective of labor unions. These include at the very start the right to a voice in dealing with those problems of industry which vitally affect the interests of labor. Unions are a challenge to industrial autocracy, and a demand for industrial democracy. But even though we recognize these dynamic qualities in unionism, we must not be blind to the excesses and errors of the movement. The struggle for recognition and power is accompanied by abuses and dangers. These must be curbed by the power of the state and the community. The public has here a definite and indispensable economic function to perform.²⁰

Industrial Peace.—To the public, the alarming feature of unionism is the strike. If labor and capital could carry on their bargaining and struggle without inconveniencing the public, there would be far less interest in the labor problem. But the climax of a dispute between labor and capital is often a tie-up of industry. If the railroads are tied up or mines closed, the public is threatened with famine and distress.

Yet when the public intervenes in a strike, labor feels that the public

¹⁹ Preamble to the constitution of the union.

²⁰ The broader aspects of the problems raised by unionism are discussed more thoroughly in a later chapter dealing with industrial democracy.

is discriminating against labor and in favor of capital. Labor does not feel that the public is an active ally. As an impartial arbiter of clashes of opinion, and of industrial struggles, the public seems primarily interested in getting the trouble settled at any cost. Industrial peace at any price is the foremost consideration and if it is necessary that justice to labor be sacrificed somewhat the public is not greatly alarmed at the sacrifice. Labor conceives that the public is more interested in peace than in a square deal to labor. Moreover, by the very nature of things the labor movement is on the aggressive, whereas employers are on the defensive. In such cases the sympathy of the onlooker is apt to be with the defender. In industrial affairs, labor, being on the aggressive, makes the attack and, for obvious psychological reasons, thereby tends to alienate the sympathy of the "long-suffering public." Labor therefore considers itself justified in pushing ahead even though it may necessitate some jostling of the complacent public. Labor's justification for its militancy and aggressiveness is the natural outcome of its feeling that it is an oppressed class. Labor believes it necessary to shake things loose and win progress in spite of the lethargy and inertia of the public. In this effort labor finds itself at a disadvantage because the information upon which public opinion is based comes from newspapers which to labor's mind do not present its side of the case fairly. Labor thinks it has no way of getting its case presented clearly to the public, and consequently, for it, the voice of the public is far from the voice of God.

Against this psychological resistance, the public has attempted various experiments in the maintenance of industrial peace. The methods of peacemaking may be examined under the following heads:

1. Mediation.
2. Arbitration.
3. Investigation.
4. Denial of the right to strike.

In Massachusetts, a State Board of Arbitration and Conciliation exercises the function of mediation. In Ohio, this function is performed by a State Industrial Commission, and in New York by a Bureau of Mediation and Arbitration under the supervision of the State Industrial Commission. In the anthracite coal strike of 1902, President Roosevelt volunteered his services as mediator, and worked aggressively to bring the struggle to a close.

Mediation may be undertaken either at the request of labor or capital, or on the initiative of the mediation officials. The New York law requires that the mediator shall if practicable proceed promptly to the locality in which the strike or lockout is threatened or has occurred and endeavor by mediation to effect an amicable settlement of the controversy. The strength of mediation is that it allows disinterested parties to utilize peaceful persuasion to the utmost. It can often be set in motion before the strike has actually occurred and prevent the struggle. Mediation is a useful instrument of industrial peace. Its weakness is its

inability to bring obdurate and unreasonable parties together. Unless labor and capital have a good spirit of coöperation to begin with, and are willing to deal frankly and amicably with each other, mediation is futile. Mediation is powerless to cope with bitterness and hatred in their more virulent forms.

Arbitration may be either voluntary or compulsory, and may be administered through public agencies or through machinery set up jointly by labor and capital in the given industry. Voluntary arbitration depends upon the willingness of both parties to submit their dispute to outside authority. The arbitrators are usually members of some state or federal board of arbitration, but they may be maintained by joint agreement of employers and employees in a given trade. In the clothing industry, labor and capital have by collective bargaining established machinery for the arbitration of disputes between the two parties.

Voluntary arbitration depends for its success largely upon the degree of bargaining power held by the parties to the dispute. If there is an even balance of power in the industry, both sides may be willing to submit their troubles to arbitration. But if one side believes that it is stronger than another, it often refuses to arbitrate. It believes it can win a clean victory in an outright fight. The desire to submit the dispute to arbitration by one party is often looked upon as a confession of weakness. It is interpreted as an admission that the party has lost confidence in its ability to win an open fight. Relatively few disputes are submitted to voluntary tribunals operated by the state. Except where labor and capital have set up their own machinery of arbitration, and by collective bargaining have agreed to settle their disputes through it as a matter of routine, voluntary arbitration has had a limited effectiveness.

Where the machinery of arbitration is set up within the industry by collective bargaining, the attitude of labor and capital is likely to be much more conducive to arbitration of disputes. In the garment industries, the building trades, and other industries, there have at times been created a Board of Referees, or an Impartial Chairman, or a Committee of Arbitration. All disputes are referred as a matter of course to the arbitrators. The arbitrators are usually paid a substantial remuneration for their time and effort. Naturally, this method of arbitration requires a strong organization of labor. Either a labor union or a shop committee is essential to the operation of the plan. Voluntary arbitration of this type evolves from the inside out, is spontaneous, and rests upon a spirit of conciliation. The decisions are usually more in the nature of mediation than of arbitration. The adjusters become expert in their particular fields, and develop a code or standard of procedure. The acceptance of mediation and arbitration by the employers and employees is a testimony to a developing sense of responsibility and self-control in industry.²¹ A drastic limitation upon the

²¹ See Research Report No. 38, *Experience with Trade Union Agreements*, National Industrial Conference Board.

scope of this policy of adjusting disputes is the fact that it can only be applied where labor is organized; either in a trade union or a shop committee. The bulk of wage earners in the United States are not so organized and therefore are unable to utilize the arbitration machinery of collective bargaining.

Compulsory arbitration can be established only by the state. The results of such compulsion can best be ascertained by a study of experiments made in Australia, New Zealand, New South Wales, and the state of Kansas in the United States. The Australasian countries have had an experience of upwards of three decades with compulsory arbitration. As a result, those countries appear to be firmly committed to the system as a permanent policy. In spite of occasional opposition from both workers and employers, the consensus of public opinion has strongly supported the policy.

The system in Australia involves arbitration machinery under the jurisdiction of both the federal and the state governments. The states for the most part have set up some form of Wages Boards, and agencies of Conciliation and Arbitration. From 1901 to 1910, the law in New South Wales, the largest state in the Australian Commonwealth, made striking punishable by fine and imprisonment. The severity of the penalty led to revisions following 1910, in which imprisonment was abolished, fines limited, and conciliation emphasized as a means of avoiding the necessity of applying compulsory arbitration. A union may not strike in any industry under government control, or under any arbitration award or agreement. It may not strike in any industry unless fourteen days' notice have been given of the intent to strike. If the Wages Boards do not adjust the dispute before the expiration of the fourteen days, the union may legally strike after that time. If twelve months' trial of an award has been made, the union may legally strike.

The Court of Industrial Arbitration of New South Wales consists of four judges, and is a court of last resort in industrial disputes. The Minister for Labor and Industry establishes Wages Boards for the various industries, and groups of these Boards are coördinated through the selection of a common chairman. Only unions may be recognized as representatives of labor, and unionism has therefore been strongly favored. The machinery of arbitration has tended to become more and more a machinery of conciliation. Arbitration is held in the background as a last resort. The number of strikes has been reduced, but not entirely eliminated. Strikers have attempted to flout the compulsory features of the act, and enforcement has at times been impossible. However, the people consider the net result worth while, and do not seriously question the desirability of retaining the compulsory provisions.

The Federal agencies for adjusting disputes in Australia center around a Commonwealth Court of Conciliation and Arbitration. The President of this Court is one of the Justices of the High Court, corresponding in dignity with one of the Justices of our Supreme Court.

Disputes may be referred to the High Court by state courts, or the President of the High Court may on his own initiative summon the disputants for a compulsory hearing. The emphasis in the law is upon conciliation, with arbitration held in the background as an ultimate means of settlement. Most disputes are settled without resort to the arbitration machinery. Relatively few cases come before the High Court, although these are likely to be the most serious and aggravated cases. Perhaps the chief single principle insisted upon by these agencies is the minimum wage. The lowest grades of labor are guaranteed a minimum living wage, and the higher grades of labor are guaranteed a differential above the minimum.

Whether or not similar legislation would be effective in the United States is a difficult question to settle. There are many differences between Australia and the United States. In Australia, the industrial population is small relative to the agricultural, whereas in the United States the industrial population exceeds the agricultural. Where industrial labor dominates the whole population, the element of compulsion is likely to be difficult to administer. Again, Australia definitely recognizes and encourages labor unions, whereas in the United States, the majority of wage earners are outside of unions, and employers are doing their best to keep them outside. The Australian principle in the United States would necessitate the almost universal unionization of labor. These are strong reasons for doubting the efficacy of the Australian principle in the United States.

However, one agricultural state, Kansas, has experimented with compulsory arbitration. The experiment was conducted in the face of fierce hostility on the part of the unions. Before there could be a full opportunity to test the consequences of the experiment, the law was declared unconstitutional. The Supreme Court of the United States declared in 1925 that, "Such a system infringes the liberty of contract and rights of property guaranteed by the due process of law clause of the Fourteenth Amendment." This decision does not necessarily mean that the Court would declare unconstitutional a law of compulsory arbitration applying to railroads, but it does indicate the probable unconstitutionality of such a law. The Kansas experiment holds out no hope of further application of the principle of compulsion in the United States.

A distinction must be drawn between compulsory arbitration and compulsory investigation of disputes. In the former, the award is compulsory. In the latter, hearings and investigations alone are compulsory. The theory is that public opinion will be so strongly behind the report of the board of investigation that labor will be influenced to abide by the report. But there is no legal compulsion to abide by it.

The Canadian system is one of compulsory investigation. According to an Act of 1907, it is illegal to declare a strike or lockout in mines or other public utilities until an official investigation has been conducted. Fines are imposed for strikes or lockouts called prior to such investigation. In practice, the compulsory features of the law have been

minimized. The law has served chiefly to develop agencies of conciliation in industry. Strikes have not been entirely eliminated. Some illegal strikes have occurred in defiance of the law. But on the whole, the law appears to have reduced strikes and to have strengthened the cause of industrial peace.

The nearest approach to an application of the Canadian principle in the United States is the work of the Railway Labor Board, established in 1920. In the original draft of the bill establishing this Board, compulsory arbitration was provided for, but the opposition of labor unions was so intense that compulsory investigation was substituted. The railroads and their workers may by mutual agreement set up Boards of Labor Adjustment to settle all disputes regarding grievances, rules or working conditions. These Voluntary Adjustment Boards are supplemented by a Railroad Labor Board of nine members, composed of three representatives of the employers, the employees, and the public, respectively. The powers of this national board authorize it to investigate any disputes which are not being adequately handled by the voluntarily formed Adjustment Boards. The Railroad Labor Board has exclusive jurisdiction in final settlement of wage questions. The Board relies upon public opinion for the enforcement of its decisions. The compulsory feature is the power of the Board to compel men and management to submit the facts bearing on cases before the Board. Whether employers or employees desire the Board to act or not, the Board nevertheless is under obligation to make an award and give the terms of the award wide enough publicity to create an informed public opinion on the case.

A crucial test of the Board occurred in connection with the railroad shopmen's strike of 1922. The pressure of public opinion finally resulted in the calling off of the strike, but the intimidation of labor by the weapon of publicity was bitterly resented. Since that time, the unions have sought to secure the repeal of the law. They are unqualifiedly opposed to the idea of using public opinion as a weapon for the crushing of a strike. A further reason for their opposition is found in the rejection by the Board of the principle of a minimum living wage. During the strike, President Harding recommended that the functions of the Board be transferred to the Interstate Commerce Commission, that its decisions be made binding, and that strikes be definitely prohibited on the railroads. These recommendations were not, however, adopted by Congress. The Board is the target of bitter attacks, and the extent of its future influence is uncertain.

In general, the success of compulsion as a means of settling labor disputes depends upon the stage of development reached by industry. At a stage where unions have to fight for recognition, when the open and closed shop controversy rages, when labor is bitterly hostile to compulsion, it is very doubtful whether compulsion can be carried far. Conciliation and voluntary arbitration are invaluable, but compulsion either on Australian or Canadian lines is of doubtful efficacy. Compulsion is purely relative to a given stage of labor and industrial develop-

ment. The stage of industrial development in the United States at the present time offers an almost insurmountable obstacle to extremes of compulsion. However much there may be to offer in defense of compulsion in abstract logic, the determining factors in its use are the prevailing attitudes and conditions in a given country at a given time.

It is not irrelevant to mention here that one of the most potent means of securing industrial peace is stabilizing the value of the dollar. The violent fluctuations in the price level between 1913 and 1923 were the real causes of most of the industrial unrest of that decade. Laborers went on strike to exact wage increases when prices were rising and went on strike to resist wage cuts when prices were falling. Recurrent inflation and deflation entail a heavy burden of friction, misunderstanding, and industrial warfare. Arbitration would never be necessary in the majority of cases if the dance of the price level did not furnish the basis for strife and battle.

Conclusion.—The relations between employers and employees are a matter of evolution and growth. They cannot be confined in any form of economic straitjacket. Deliberate effort to improve and control industrial relations is necessary if progress is to be insured. The conquest of a new status of power is one of the primary objectives set up by labor. This demand for status involves policies of representation in industry, of collective bargaining, of constitutional government applied to the workshop.

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CHAPTER XXIII

INEQUALITIES OF OWNERSHIP AND INCOME

Diffusion of Ownership.—The increase in number of stockholders in various kinds of business from 1918 to 1925 is indicated in the following table:¹

Industries	Number of Stockholders	
	1918	1925
Railroads	647,689	966,170
Express and Pullman	12,956	23,779
Street railways	275,000	550,000
Gas and electric	1,250,000	2,611,279
Telephone and telegraph	107,033	371,604
Packers	65,000	100,000
10 oil concerns	23,502	161,179
5 iron and steel concerns	130,923	223,149
10 manufacturing companies	25,002	44,339
Total	2,537,105	5,051,499

Of the increase of 2,514,394 stockholders, 338,760 were employees, 864,754 were customers, 1,310,880 were the general public. For all industry, stockholders increased from 4,400,000 in 1900 to about 14,400,000 in 1922.² In addition to the increase of stockholders, there has been an increase of bondholders which may total more than 2,000,000. One fact seems certain, namely, that a remarkable expansion of stockholding has taken place during the last decade.

However, these figures do not tell us the value of the stock held by the scattered mass of new stockholders. There has occurred a marked increase in numbers of stockholders, but this increase does not reveal the extent to which inequalities of ownership have been moderated. Although statistics are lacking on this point, there is no reason to believe that the mass of petty stockholders own more than a very small fraction of the total corporate property. Ownership still concentrates in the hands of the few. Five million small stockholders may not own as much stock as five hundred wealthy stockholders. Whether ownership has

¹ R. S. Binkerd, *Proceedings of the Academy of Political Science*, April, 1925, p. 33.

² H. T. Warshaw, *Quarterly Journal of Economics*, Volume 39, pp. 13-39.

actually been diffused is a question which cannot be answered from data of the foregoing type. Certain agencies of publicity use such data to create the impression that decentralization of ownership has taken place, but obviously the kind of data needed would be statistics showing what proportion of the total capital of a corporation is owned by, say, the 5 per cent of largest stockholders.³

The greatest increase in number of stockholders has appeared in the industries classed as public utilities. This fact is not the result of accident but of deliberate policy. Undoubtedly the utilities have felt the necessity of checking the encroachments of public regulation. One check attempted has been by way of making the public the stockholders of the concerns. By giving a stake in the company to employees, customers, and the general public, the utilities can hope to make the public their ally. They can hope to get the public on their side when public service commissions begin to enforce too restrictive rules and regulations. Another motive has been to appease labor. "Every laborer a capitalist" is a slogan frequently heard. The laborer stockholder is assumed to be immune to union agitation, to strike propaganda, to radicalism. He has an ownership stake in the concern, and wants his property safe from labor unrest.

Although these motives of controlling public opinion and labor unrest have been important, we must not overlook a broad element of constructive gain for the stockholding public. As a means of stimulating thrift, encouraging saving, and accumulating capital, democratic ownership is of great benefit to the public. There is a distinct social gain from diffused ownership. From the standpoint of private business, however, this social gain is often an incidental by-product. The main intent is to influence public opinion and labor attitudes, but if the incidental consequence is also sound and good, that is so much added advantage.

In two important fields, the tendency in recent years has been toward decreasing popular ownership. These fields are farms and homes. Herbert Hoover states that "for twenty years the national ratio of owned homes has fallen slowly and slightly, but steadily."⁴ In 1880, farms operated by owners or part owners were about 75 per cent of the total, but in 1920 there were only about 62 per cent of the total. In these two fields, diffusion of ownership, although of the greatest social importance, is not being attained.

Savings accounts are a good index of popular accumulation. The increase in such accounts from 1918 to 1925 was as follows:⁵

³ In 1922, the American Telephone and Telegraph Company offered a new subscription of stock, of which three-fourths was taken up by one-third of the subscribers, *ibid.*, p. 65. After fourteen years of employee ownership, The United States Steel Corporation in 1922 had 94,415 employee subscriptions of stock, amounting to a total of \$7,930,860. This total was equal to only about .6 of 1 per cent of the total capitalization of the company. See E. E. Lincoln, *Applied Business Finance*, p. 279, and R. S. Brookings, *Industrial Ownership*, p. 92.

⁴ *Proceedings of the Academy of Political Science*, April, 1925, p. 49.

⁵ *Ibid.*, p. 37.

	Number of Savings Account Depositors	Aggregate of Deposits
January 1, 1918	10,631,586	\$11,115,790,000
January 2, 1925	38,867,994	20,873,552,000

The number of depositors nearly quadrupled and the amount of deposits nearly doubled. The deposits are invested in high-grade bonds, and constitute an important source of capital accumulation.

At the end of 1924, the life insurance companies of the United States held financial reserves of \$10,400,000,000. The total insurance coverage was about \$64,000,000,000 and the number of people protected about 50,000,000. The reserves are invested in mortgages upon farm and city real estate and in high-grade bonds. Through life insurance, scattered savings are taken care of and capital accumulation is realized. Insurance is one of the most desirable institutions for the promotion of thrift and for the diffusion of income and comfort. The average policy holder has a savings fund in life insurance of \$208. Although the individual amounts are relatively small, the aggregate of these amounts gives a very substantial fund of capital savings.⁶

In November, 1920, the Brotherhood of Locomotive Engineers established a labor bank in Cleveland, Ohio. Between that date and the end of 1924, twenty-eight additional labor banks were established in the United States, with resources of nearly \$90,000,000. In addition, two large independent banks had been brought under partial control of labor by purchase of stock. Some of these banks are chiefly savings banks, some are commercial banks, and some do an investment banking business. The fact that such banks can be established is proof that members of labor unions have saved and accumulated sufficient capital to launch banking enterprises. It is also proof of the desire of labor to assume new responsibilities and new functions. The deliberate assumption of the risks and duties of management is a new departure in labor policy. Labor unions have at times used their savings for trade union benefit plans, unemployment insurance funds, fraternal life insurance, and similar purposes. In all such cases, labor aims to control the use made of its savings as well as merely to make the savings. In this respect, labor union savings differ from diffusion of stockholding ownership, for in the latter case, the management and control of the savings is left with the private business enterprises concerned.

The changing relationship of the masses to property ownership introduces many institutional developments. Where corporations solicit employee purchases of their stock, they are under a heavy responsibility to make sure that the safety of such purchases is unimpaired. The protection of many employee savers was decidedly weak during the hard times of 1921. Moreover, means should be taken to reduce the

⁶ *Proceedings of the Academy of Political Science*, April, 1925, p. 429.

chances for stock swindling. It has been estimated by some students of the subject that the annual loss from stock swindling is about \$500,000,000. Furthermore, stability of the price level is essential to the safety of investors. Inflation wipes out the purchasing power of invested savings, and works a rank injustice to the worker investor. Safeguards against hazardous investments, against swindling, and against inflation of the dollar are necessary for the protection of the mass of small investors.⁷

Finally, the diffusion of stock ownership has much to offer as a means of stimulating independence and stability of income for the masses. But it has less to offer as a palliative for various industrial troubles. As a means of escape from the necessity of setting up some form of labor representation in the business, it is of doubtful social value. As a means of silencing the determination of the public to regulate utilities, it is of doubtful social value. It is not a substitute for equitable and adequate wage rates, nor for labor relations consistent with democratic institutions.

After all is said in behalf of widely diffused ownership, it remains true that sharp inequality of fortune prevails in the United States. Whether this inequality is being lessened or increased is a problem we are unable to answer with present statistical knowledge. If it is being lessened, the rate of progress in this direction is very slow. Marked inequality in fortune is firmly entrenched in present-day property institutions. Inequality appears to hold a highly impregnable position. The reasons for this fact will be discussed in the balance of the present chapter.

Effort versus Ownership in Distribution.—The national income may be thought of as consisting of two great divisions: One, that going as a reward for work performed and services rendered by human beings; the other, that going to the holders of property by virtue of ownership. "Work and property are the two great categories upon which, in approaching the problem of distribution, we should concentrate our attention."⁸ The former category covers wages, salaries, fees, etc., reward for effort expended, mental or manual or both. The latter covers interest, dividends, and rent,—that is, reward because the owner of property has loaned or invested his savings. Generally, the two classes are fairly distinct. The owner of bonds to the amount of \$1,000,000 draws an interest of perhaps 5 per cent, the interest being a reward for ownership. The wage worker in the factory where the million dollars is invested draws a wage of perhaps \$1,200, the wage being a reward for effort of hand and brain. The president of the company draws a salary of perhaps \$50,000 as a reward for his services as an executive. He may at the same time own bonds or stock in the company upon which he receives property income in interest or dividends. The president of the

⁷ For a valuable discussion of the relation of law to the investor, see E. Seligman, *Proceedings of the Academy of Political Science*, April, 1925, p. 88.

⁸ H. G. Dalton, *The Inequality of Incomes*, p. 175.

concern in that case receives both an effort income and a property income. However, the two sources of income distribution remain distinct. They are separate shares of the income of the individual, and in the aggregate stand out as separate shares of the total national income.

The statistics of the case are too incomplete to allow a precise estimate of the ratio between the two shares, but approximations are possible and for all general purposes these approximations are highly useful. Hugh Dalton has estimated the relative shares received for property and for effort as follows:⁹

	Share of Property Per Cent	Share of Effort Per Cent
United Kingdom	32	68
United States	29	71
France	39	61
Italy	26	74

The share of property ranges therefore in the vicinity of 30 per cent of the total income fund.¹⁰ This ratio, however, fluctuates a great deal from year to year. During the years 1916 and 1917 the share of the annual income which was distributed in the form of wages and salaries was comparatively low. It amounted probably to less than two-thirds of the total. But in the following two years, the share of wages and salaries mounted high, rising to approximately three-fourths of the total income. The variations arise from fluctuations in price levels, in the system of taxation, in labor efficiency, and in wage rates.¹¹ The essential fact is the fairly stable ratio between incomes for doing and incomes for owning. The incomes for doing amount to more than double the incomes for owning.

Personal Inequalities of Property Ownership.—In the United States it has been estimated that 1 per cent of the population owns approximately one-half of the wealth. The richest 2 per cent of the population owns, so it has been estimated, about 60 per cent of the wealth.¹² In the more advanced industrial countries, a large majority of the population is virtually propertyless. Three-fifths of the population in such countries as the United States, the United Kingdom, France and Prussia are without ownership of any considerable property. It has been estimated that in New York City, as much as two-thirds of the population

⁹ H. Dalton, *The Inequality of Incomes*, p. 209.

¹⁰ National Bureau of Economic Research, *Income in the United States*, pp. 97-108, 145.

¹¹ David Friday, *Profits, Wages and Prices*, pp. 124-125, 130.

¹² R. T. Ely, *Property and Contract in their Relations to Wealth*, p. 319; W. I. King, *Wealth and Income of the People of the United States*, p. 196; W. R. Ingalls, *Current Economic Affairs*, pp. 142-161, disputes these estimates, and places the maximum per cent of property owned by the richest 1.7 per cent of the population at 48 per cent. He estimates that the actual amount is less than this maximum figure, and in the neighborhood of 30 per cent of the total wealth.

are without any registered property.¹³ In these modern industrial communities, the richest 2 per cent of the people own considerably more than all the rest of the people taken together. This extreme inequality of ownership indicates in a modern democracy two classes, side by side, the one possessed of enormous wealth, the other destitute of any property save the more immediate necessities of life. In the large industrial centers, probably 90 per cent of the wage workers are propertyless. Only a negligible number of wage earners in New York City own their own homes.¹⁴

The middle classes, comprising about one-third of the population, own about one-third of the property of the country. Clearly, there is excessive concentration in the hands of the small number at the top of the scale, and only a pitifully small amount in the hands of the great mass of wage earners.

It follows, therefore, that the great bulk of the income for owning rather than doing goes to a very small fraction of the population. The giant's share of property income goes to the richest 1 or 2 per cent of the population. The income of the lower two-thirds of the population is almost exclusively an income for physical and mental effort. They receive virtually no income for owning, for they own virtually nothing. This contrast is most violently marked when the largest single fortune in the United States is compared with the propertyless condition of the mass of the population. This fortune was estimated in 1915 at about \$1,000,000,000, and is equivalent to the wealth of 2,500,000 of those classed as in the lower levels of society.¹⁵

Identification of the causes of these inequalities and their effects upon society requires an analysis of private property as an institution. This institution provides an organization of economic forces of which this gross inequality is the natural outcome. Any other outcome would involve an alteration in some fundamental characteristics of the institution. This institutional analysis will be undertaken later in this chapter.

Personal Inequalities of Income.—In the United Kingdom, pre-war estimates allotted one-half of the total income of the nation to about 12 per cent of the people, and, what is more striking, one-third of the total income to about 3 per cent of the population.¹⁶ In the United States, that richest 1 per cent of the population which owns about one-half the wealth receives approximately 15 per cent of the income. This illustrates the fact that the inequalities of income are not so great as the inequalities of ownership. The total income of the masses of workers is not reckoned upon any property basis, but upon a wage or salary basis. "The working man, commonly, receives more income in a year than the total value of his possession while the rich man's income, being composed largely of rent, interest, and dividends, will, ordinarily, con-

¹³ Ely, *ibid.*, pp. 318-19.

¹⁴ R. Hunter, *Poverty*, pp. 42-43.

¹⁵ *Federal Commission on Industrial Relations*, Volume I, pp. 32-34.

¹⁶ Sir L. C. Money, *Riches and Poverty*, Chapter III.

stitute but 3 to 10 per cent of his wealth."¹⁷ But this is not to imply that the inequalities of income are not carried to startling extremes. Indeed, if the greater inequalities of ownership were not already in mind, these inequalities of income would seem staggering enough in themselves. The richest fifth of the families in the United States claims about half the income.¹⁸ To put the facts of income and ownership side by side, it may be stated that one-half of the *income* goes to the richest fifth of the people whereas one-half of the *wealth* is owned by one-hundredth of the people.¹⁹

The full effect of the war period upon inequalities of income has not yet been measured. One impressive fact is the number of incomes of \$50,000 or over. They were estimated at about 27,000 in 1917 and 16,686 in 1923. In 1917 there were 141 individuals whose annual income was one million dollars or over. In 1923 there were seventy-four people listed in the same class. At the other end of the scale were over 85 per cent of the population gainfully employed whose incomes were less than \$2,000 per annum. The incomes of the largest property owners make up a huge share of the total income of the nation, and the inequalities between these two great groups of the population are enormous.²⁰

Any attempt to understand the problem of ownership, wealth and income must begin with a vivid conception of these inequalities. The extremes of income, the violent contrasts between the most well-to-do and the least well-to-do are the center of the picture of income distribution.

In the higher income classes, the ratio between income for owning and income for doing is also significant. Approximately one-half of the incomes between \$3,000 and \$4,000 arises from personal services, the other half from ownership. When incomes reach the \$10,000 figure, the share due to personal service is reduced to one-fourth, whereas the share due to owning rises to about three-fourths. When incomes reach the figures which rank the income receivers as millionaires, the share due to personal services falls to about 14 per cent. When incomes pass the \$1,000,000 mark annually, the share for personal services declines to a trifle over 4 per cent. Obviously, the higher the income, the lower the proportion due to personal services, and the greater the proportion due to ownership.²¹

The statistics of wealth, income and ownership are of importance because they give a quantitative conception of the actual facts. By setting the various shares of wealth and ownership in their right proportions, the statistics supply the economic observer with fairly accurate

¹⁷ W. I. King, *op. cit.*, p. 231.

¹⁸ King, *op. cit.*, p. 235.

¹⁹ On above data, see National Bureau of Economic Research, *op. cit.*, pp. 108-143, 147.

²⁰ See *Statistics of Income*, 1918 and subsequent years, United States Bureau of Internal Revenue.

²¹ David Friday, *Journal of Political Economy*, Volume 26, p. 962.

mental pictures of the relative size and strength of the several factors entering into the broad problems of wealth.

The Institutional Basis of Inequalities in Fortune.—Why have these facts of wealth and property come to be what they are? Why do they tend to maintain themselves? In the very nature of things, are these inequalities immutable and inescapable?

The most useful method of answering these inquiries is to study *property institutions*. As C. H. Cooley has insisted, ownership and distribution are “essentially a historical and institutional phenomenon, economic technique being for the most part only a mechanism through which social organization expresses itself,” and “pecuniary valuation is a social institution no less than the state or the church.”²²

An institution is a group of human tendencies and habits working out through an organized structure.²³ It is the product of history. It has antecedents reaching back through generations, and is always in a state of flux and change. It is what it is today because it was something less satisfying yesterday. It will be something different in days ahead because it is not fully satisfying today. An institution is on the march from yesterday forward to tomorrow. It is dynamic. It grows, develops, moves. This is not to deny that there are always forces at work trying to keep the institution static, trying to preserve the *status quo*, trying to maintain things as they are. But this is only the conservative side of growth. It combines with another side,—restless, forward-looking, dynamic. The two at their best balance in wholesome, gradual, safe advance; at their worst they fight it out.

If we view the church as an institution, at its beginning, then during the Middle Ages, through the Reformation, through the development of religious liberty in the American colonies, on through the last century of development in America, and finally in its present form, we have a fairly clear picture of the dynamic character of the church as an institution. Creeds, dogmas, rituals, teachings, theologies, interpretations, beliefs, constantly moving forward, appear simultaneously with organization, denominational structure, practice, custom, tradition and innovation.²⁴ It is so with the institution of property. Every little while a student of economic life throws out the declaration that “We are living in a new economic world.”²⁵ In other words, economic institutions are moving.

Obviously, then, the institution of property as it exists today is not fixed and static in all its detail and method. Institutions have much the same restless qualities as life. In fact, property is nothing unless a way of life. To view property as a static order is to miss the true dynamic nature of property. The general point is emphasized by de Tocqueville when he says, “I am tempted to believe that what we

²² *Social Process*, pp. 302, 308.

²³ W. G. Sumner, *Folkways*, p. 53.

²⁴ Ross, *Principles of Sociology*, p. 489.

²⁵ R. T. Ely, *Property and Contract*, p. 34.

call necessary institutions are often no more than institutions to which we have grown accustomed, and that in matters of social constitution the field of possibilities is much more extensive than men living in their various societies are ready to imagine.”²⁶

Property has been defined as “a bundle of rights.” There is no more conspicuous feature of the institution of property than this overwhelming emphasis upon the rights of property.²⁷ The period when the American Constitution was established, and the foundations of the American system of government and property laid, was dominated by the philosophy of natural rights. European countries were repudiating old authorities, traditions and customs. The new freedom was akin to the freedom of the American Revolutionary group, and it furnished a soil in which flourished an extreme doctrine of the individualistic rights of all men to life, liberty and the pursuit of happiness. Accordingly property became a set of exclusive rights. The property owner had inalienable rights to do with his property as he pleased, subject only to a minimum of restraint from excessively anti-social practices. Property was something to be let alone by society. It had inalienable rights to be let alone. Property rights were individual rights, and this conception colors deeply the whole institution of property down to the present day.²⁸

One weakness in this theory of property rights has become very prominent, namely, the implication that “the foundation of society is found, not in functions, but in rights; that rights are not deducible from the discharge of functions, so that the acquisition of wealth and the enjoyment of property are contingent upon the performances of services, but that the individual enters the world equipped with rights to the free disposal of his property and the pursuit of his economic self-interest, and that these rights are anterior to, and independent of, any service which he may render.”²⁹ Rights come first and responsibilities second. Property is thought of primarily as a bundle of rights, but not emphatically as a bundle of duties. And the rights acquire a certain sacredness and awfulness. They command a sort of religious reverence which does not invite analysis. Such rights it seems sacrilege to question. In this atmosphere, it is hard to make a clean-cut mental approach to the problem of property and find just what it is all about. As a matter of fact, the so-called rights are simply rules of the institution; and if the rules are capable of improvement, then a blind awe of ancient rights should not stand in the way. The rules of the game are being tried out. There is nothing absolute and unapproachable about them. They should be exempted from superstitious reverence and treated with the same common sense which men use in coping with problems of everyday life. A proper infusion of duties, obligations, and responsibilities is indispensable, and an unquestioning reverence for rights as

²⁶ *Recollections*, p. 101.

²⁷ Ely, *op. cit.*, p. 60.

²⁸ See *The Independent*, April 16, 1908; also S. P. Orth, *Relation of Government to Property*, pp. 7-84.

²⁹ R. H. Tawney, *The Acquisitive Society*, p. 20.

rights must give way to a proper spirit of accommodation of the property institution to the needs of the present period.

A. T. Hadley states: "The general status of the property owner under the law cannot be changed by the action of the legislature or the executive, or the people of a State voting at the polls, or all three put together. It cannot be changed without either a consensus of opinion among the judges, which would lead them to retrace their old views, or an amendment of the Constitution of the United States by the slow and cumbersome machinery provided for that purpose. The voter was omnipotent—within a limited area. He could make what laws he pleased, as long as those laws did not entrench upon property rights. He could elect what officers he pleased, as long as those officers did not try to do certain duties confided by the Constitution to the property holders."

The United States Supreme Court asserts that, "Wherever the right of private property exists, there must and will be inequalities of fortune." It is "impossible to uphold freedom of contract and the right of private property without at the same time recognizing as legitimate those inequalities of fortune that are the necessary result of the exercise of those rights." In other words the inequalities of wealth are bound up with the institution of property, and are inseparable from it.

The Corporation as a Property Institution.—The property owner under the corporate régime enjoys limited liability. That is, he can be held liable for the debts of the corporation only in proportion to the shares of stock which he holds. Under the influence of this protection, ownership through bonds and stocks has largely displaced the old personal direct ownership of property and has become the typical form of ownership in modern organized industry. This evolution in ownership was indispensable to the development of modern production, commerce and finance. Without the corporate form of ownership it is inconceivable that the modern economic system could have been developed. "Although merely an immaterial form, it has nevertheless wielded an economic and social influence greater than any other purely conceptual entity of the last century. The contribution of the corporation to the evolution of the form of modern industry has been no less potent than that of machinery to its technique."³⁰

Corporation methods allow for a scattering of ownership with a concentration of control. The scattering of ownership is carried to remarkable lengths. In a typical large scale enterprise, the owners of securities are scattered throughout most of the States of the Union, and through a number of foreign countries. People in Brazil, Japan, California and New York are owners of the securities of the typical large corporation of Pennsylvania or Ohio. Men and women, wage workers and farmers, savings banks and insurance companies, multi-millionaire estates and corporation executives, lawyers and doctors, all and several own a few or a great many shares of securities, and this grand miscellany in its totality is the ownership of the corporate property and under-

³⁰ A. Dewing, *The Financial Policy of Corporations*, pp. x-xi.

taking. At the same time, the executive control and direction of the corporate property is highly concentrated. A controlling amount is owned by specially interested parties and the votes of the remaining security holders are merely nominal votes. These major interests manage to secure a satisfactory Board of Directors, this Board in turn giving over the administrative tasks of the business to appointed executives. This highly concentrated control enables a relatively small number of aggressive, domineering persons to have at their disposal the accumulated savings of masses of people.

In 1922, there were 382,883 corporations listed on the records of the Bureau of Internal Revenue, representing a total capitalization of about one hundred billion dollars, approximately one-third of which was in bonds and two-thirds in stocks. Bonds appear in a variety of forms, but have one basic principle in common, namely, they are secured by a mortgage on definite property or have prior claims on the general assets and credit of the given corporation. Backed by such a security, the bond is the corporation's promise to pay the investor interest on a certain sum of money for a stated period of time, and at the end of that time to pay back the sum originally borrowed. The stockholders have a right to the income or property of the corporation only after the claims of bondholders are satisfied. As a rule the security behind stocks is secondary and inferior, but the rate of income is commonly higher. People who invest in bonds are usually more interested in the safety of their money than in high income; whereas people who invest in stocks are willing to sacrifice something of safety for the sake of securing large income.

The corporate form of ownership facilitates the exercise of the basic property rights. The right to acquire property is made easy of exercise for anybody who is able and willing to save money. Bonds run in denominations from \$50 to \$1,000 and stocks from \$5 to \$100 par value. Partial payment plans enable the investor to buy stock, if he chooses, in essentially the same way that he may buy furniture,—on the installment plan. Savings banks, investment banks, bond houses, stock exchanges, underwriting syndicates, all provide a ready opportunity for investment for both large and small sums. The wool grower in Australia can acquire the property of the Pennsylvania Railroad and the wage worker of Pittsburgh can acquire the property of English iron works. The farmer in Kansas can acquire the property of Pennsylvania coal mines, and the bank president of New York City can acquire the property of Brazilian coffee companies. If the would-be investor has the money wherewith to buy, he can have bonds or stocks, and no questions asked. The investment market is organized to attract investors, and corporations vie with each other in drawing the funds of investors toward their securities.

The real object of investment is not the possession of physical goods but of pecuniary rights. Investors buy a claim upon the earning power of the corporation. This phase of investment is especially apparent in

the purchase of those securities which represent intangible assets. Good will, intangible assets, earning capacity, etc., are common factors in stock issues, and mean simply that the man who buys them buys the right to an income in the future. If the buyer went to the plant of the corporation and asked to see his property, no one could show it to him. He would not own machines, or buildings, or raw or finished material. He would own earning capacity, an intangible concept, but nevertheless a reality on dividend day. But as a matter of fact the average owner of stock would never think of going to the corporation's plant and asking to see his property. He bought the right to an income and cares little or nothing where it comes from. He bought dividends, not tangible property. So long as dividends are forthcoming, his purchase of the earning power justifies itself. The stock purchaser may anticipate, at the same time, that a rise will occur in the market value of his stock. If he can, by holding it, sell for more than he paid, the difference represents gain.

Inequalities of Fortune Due to Unequal Privileges.—Under property institutions, various inequalities of opportunity develop and establish themselves. Special privilege aids one individual at the expense of another. It puts into the hands of the more fortunate superior acquisitive opportunity.

The chief inequalities of privileges are those arising from inheritance, monopoly powers, and unforeseen chance.

Inheritance is a primary cause of the more extreme inequalities of income and ownership. Some people at birth are heirs to fortunes; others are heirs to nothing at all. Enormous estates are handed down from generation to generation and perpetuate the chasm between the extremes of possessors and non-possessors.³¹ It has been estimated that "four-fifths of the one hundred and fifty or more fortunes in the United States having incomes of over \$1,000,000 a year have been accumulating for two generations or more."³² In England, where the influence of inheritance has had a longer time to work itself out, "The number of wealthy men at the top is two and a quarter times as great, in proportion to population, . . . as in the United States."

At the other end of the scale stands the common worker, with practically no belongings except a few articles of furniture and clothing. Probably three out of five of the children of the country are born into propertyless families. Children of these classes inherit only bodies and brains to work with capital owned by others. Nothing is handed down to them in the form of a competence to begin life on. They have no assured means of livelihood. They are dependent upon the real property owners of the community.³³

This contrast of inheritance has come to have some very serious results. The man who inherits property inherits not merely an assured

³¹ See Cannan's *Wealth*, pp. 182-184, and Taussig's *Economics*, pp. 248-250.

³² Irving Fisher, *American Economic Review*, March, 1919, p. 12.

³³ Hobhouse, *Property, Its Rights and Duties*, p. 21.

income; he receives the power of control over the lives of a group of workers. The worker has come to feel a stinging sense of discouragement and injustice in the arrangement. He sees many people living on inherited fortunes without doing any genuinely useful work and he sees his own group working hard for a living which in comparison is rude and insecure. From the viewpoint of an outsider, the sense of injustice appears well founded. This outside viewpoint is admirably stated by Bishop Charles Gore of Oxford, as follows:

"The success of civilization for us must be measured not by the amount and character of its products or material wealth, nor by the degree of well-being which it renders possible for a privileged class, but by the degree in which it enables all its members to feel that they have the chance of making the best of themselves, to feel that an adequate measure of free self-realization is granted them. On this ground then our civilization is open to the most serious indictment. . . . In our own civilization we find vast masses of men and women who cannot be reasonably described as having any adequate measure of property for use. They cannot go into life with the security of free men. They cannot, within reasonable limits, control their own destiny. They cannot realize themselves."

Out of this situation arises in large measure the discontent of the common man. Gross inequalities of fortune are behind unrest. And the labor movement, the reform movement, the progressive movement, all social movements, are in the nature of an attack upon the extreme inequalities which are perpetuated by the established system of inheritance. Persons who acquire fortunes by inheritance cannot offer the claim that their fortunes are due to their own superb abilities. These fortunes were earned by the abilities of a generation now dead. The democratic challenge in industry directly relates to these unearned and undemocratic inequalities of property. Inheritance as a part of the institution of property is on the defensive and has to seek grounds to justify itself. The principles of inheritance are in a stage of drastic transformation because of the social forces of the times.

This transformation is the more possible because inheritance is not established as an inherent and inalienable right of property. The preponderant judicial opinion makes inheritance a custom or tradition of economic society which can be modified and altered whenever social needs make new customs and traditions desirable.³⁴

The war made so many new large property owners that the importance of the situation is greatly accentuated. It is estimated from income tax returns that the war added twelve to fifteen thousand new members to the millionaire class. Some of these accessions to the millionaire group were due to the rise of price levels which automatically enhanced the price measure of property without actually changing the amount of the property itself. The large fortunes, moreover, do not stand still. Through dividends, interest and rent they are steadily on

³⁴ Fisher, *American Economic Review*, March, 1919, p. 12.

the increase. The largest amount of saving is done by the largest property holders, and these savings mean more investments and more income. Their savings are large, not because their consumption is small, but because their income is extraordinary. The inequality thereby mounts higher and higher.

Whatever may be thought of the ability of the recipients of the largest fortunes, at least that ability is great enough to retain the fortunes. A recent estimate places the number of fortunes between \$5,000,000 and \$10,000,000 handed down during the present generation at five hundred.³⁵ In the original building of the great fortune, a high degree of genius and unswerving energy is ordinarily the telling factor. Only the man of force of character and considerable shrewdness can start with little or no means and pull himself up to a position of wealth. But once the fortune is amassed, and handed down to a succeeding generation, it requires only an indifferent ability to hang onto it. As G. P. Watkins remarks, "Keeping riches once gained is easier than ever before. . . . The rich by inheritance have a position which they can lose only by a destructive tendency amounting almost to madness."³⁶ The inheritor of a fortune who lacks the ability to manage the fortune, or who desires not to be bothered with the responsibility, can hire a trust company to give expert management of the property. So inequality begets greater inequality, and inheritance without severe restriction lies at the root of the situation.³⁷

All of this is not to deny that a substantial amount of inheritance is desirable. It is beneficial to the recipient because it gives him a superior opportunity at the start of his career. It makes for the security of himself and his family. It is good for society that inheritance within limits should be preserved. The entire difficulty springs from immoderate bequests and the consequent excessive and dangerous inequalities. The social attack upon inheritance is not upon inheritance itself, but upon the undue concentration of it. The social movement seeks a wider distribution of inheritance,—more inheritance by the mass of people and less inheritance by the concentrated handful. As Taussig is careful to remind his readers, "Inheritance, in sum, is an indispensable part of the institution of property."³⁸

The principles by which inheritance is to be placed under social control are chiefly psychological. First of all, the limitations on inheritance must be high enough to affect favorably the motives of the various parties concerned. The inheritance tax must be rigid enough so that the people receiving a bequest are not thrown on easy street nor given the feeling that they are freed from the necessity of making good in individual economic service. As Ross warns, "Not that a son may not inherit enough of his father's wealth to live on, but that no one

³⁵ H. H. Klein, *Dynastic America and Those Who Own It*.

³⁶ *Growth of Large Fortunes*, p. 159.

³⁷ Dalton, *The Inequality of Incomes*, p. 329.

³⁸ Taussig, *Economics*, p. 251. See also Ely, *Property and Contract*, pp. 425-426.

may inherit a fortune so large as to kill in him all incentive to work and to tempt him into an extravagance of expenditure and conduct which discourages or corrupts the useful members of society.”³⁹ Inheritance taxation must then be severe enough to reduce those glaring inequalities which give the ordinary man a bitter sense of the hopelessness of trying to get ahead. This psychological necessity is clearly stated in one of Theodore Roosevelt’s messages to Congress. He declared that the reduction of the gross contrasts of inherited wealth would “help to promote a measurable equality of opportunity for the people of the generations growing to manhood.” Inheritance taxation should also be measured by its effects on the men who have the ability to earn great fortunes by strenuous business endeavor. The man who makes a large fortune has the opportunity to use it in the form of public gifts and benefactions which enhance the prestige and public esteem of the donor. If the rich man realizes that unless he does make large public benefactions, his property will in large measure be taken by the State at his death, he is likely to prefer to make the benefactions. With the knowledge that the State will take a large share of the property which he does not give away before his death, the ordinary man of wealth would be induced to take to heart the claim of Andrew Carnegie that it is a crime for a man to die rich, and that the only human and decent procedure is to bestow one’s fortune for useful social purposes during the owner’s life. Millionaires might thus be inspired to give parks to cities, build art galleries or libraries, endow universities, establish foundations for scientific and medical research, provide hospitals, subsidize deserving philanthropic causes, etc.⁴⁰ Inheritance taxation should be so regulated as to stimulate fortune owners to give wisely and generously for social purposes; encourage the recipients of inherited fortunes to render useful service to society; and keep alive the hope of economic success among the masses.

Secondly, the converse of this proposition is that the taxation should not be so great as to cause evil psychological effects. If too much of a fortune is taken by the State, men will be discouraged from wanting to make money. A certain amount of inheritance is useful as an inducement or reward for men to throw themselves strenuously into business endeavor. The prospect of handing property down to their children stimulates men to create a competence for themselves and their families. But beyond a certain point the family motive is displaced by other motives. Irving Fisher found that the business man’s accumulating motives beyond a certain point “were rather those of power, of self-expression, of hunting big game.” Inheritance taxation which stifled the basic impulses of men of great ability in business would defeat its own purposes.

The exact tax rates which strike this psychological balance are still a matter of political experiment. In forty-six States, inheritance taxes

³⁹ *Principles of Sociology*, p. 385.

⁴⁰ See Carnegie’s, *The Gospel of Wealth*.

of some sort existed in 1924, with rates ranging for direct heirs from 1 to 15 per cent and for collateral heirs from 3 to 40 per cent. The Federal Government in 1924 had an inheritance tax on estates running from 1 to 40 per cent. Most European countries have established substantial inheritance tax rates. The principle is accepted by most advanced nations, and may be looked upon as established in its fundamental implications.

Monopoly Privileges a Cause of Inequalities.—Special privileges and monopoly advantages are abundant in the economic system. Illustrations would include avenues for inside information in stock speculation, secret knowledge of the sections of future city development as a clue to real estate investment, patent rights, franchises to railways and other public utilities, power to fix monopoly prices, favoritism in the granting of contracts, devices of unfair competition, superior possession or monopoly of raw materials and other resources, superior bargaining power with lesser companies or with labor, tax exemptions, trade-union influences, etc.⁴¹ Monopoly privileges may exist among labor groups as well as among property groups, and often it occurs that a labor monopoly is matched in an economic struggle, quietly or openly, with property monopolies. In the general run of cases, these monopoly advantages tend to further the inequalities of ownership and income.

This analysis does not imply that monopoly advantages are indefensible. Most monopoly advantages contain elements of real service to society. In many cases, they are the creation of men of great genius and ability. A patent monopoly, for instance, often arises in this way. A monopoly advantage is not a sign that a man has fallen without effort into easy street. The men of towering ability create special privileges for their business undertakings where such privileges are necessary. There are good and bad monopoly advantages, and those which are the result of ability and those which are not. The bad privileges are almost invariably strong causes of inequalities of fortune, and the good privileges in no small measure work to the same end, although in the latter cases the inequalities are apt to be a reflection of ability that brought substantial public good.

John R. Commons gives evidence to indicate that about four-fifths of the millionaire fortunes have been derived from permanent monopoly privileges. The largest of these fortunes are thought to have benefited most by special privileges, for it is estimated that "perhaps 95 per cent of the total values represented by these millionaire fortunes is due to those investments classed as land values and natural monopolies and to competitive industries aided by such monopolies."⁴² In the building of these fortunes, personal ability counted primarily, but personal ability consisted of the power to create and the genius to use monopoly advantages. It is in this way that monopoly advantages foster inequalities of possessions.

⁴¹ See G. Myers's *History of the Great American Fortunes*.

⁴² *The Distribution of Wealth*, p. 252.

A careful authority, J. W. Jenks, concludes a study of the winning of great fortunes by a summary which is substantially in line with these opinions. He says, "Let me emphasize again what I said before, that it is probably in and through the exercise of the principle of plunder or the undue exercise of advantage, of gambling or of its allied principle of monopoly, or of special privilege or favor of some kind that many, very many, if not most of the greatest fortunes have been won."⁴³

Unforeseen Chance as a Cause of Inequalities.—Luck, circumstance, an unexpected turn of events, accident, and fortuitous change all play an important part in the winning of large fortunes. "Two men earn equal amounts because they are of about equal ability and industry and work at the same trade; they save equal amounts, and invest with what good authorities would consider equal judgment, but the investment of the one turns out fortunate and that of the other unfortunate. The one becomes rich and the other remains poor."⁴⁴ Likewise, the variations in the price level affect deeply the value of investments and the purchasing power of fixed incomes. A dollar of permanent investment before the war would in post-war prices have a purchasing power of about sixty cents. With a shrinkage of the dollar in a period of inflation there goes a violent fluctuation in the value of all forms of property. A new railroad built through one section of a city increases the real estate values of the neighborhood, a new law passed by the legislature curbs or releases profit-making power, a costly strike or a poor wheat crop swings fortunes up or down as the case may be. Perhaps the greatest factor of chance is the profit system itself. Profit is paid as a reward for risk. The business man takes his chances and in recompense receives a profit. The more risky the business presumably the higher the profit deserves to be. The element of chance is in this way definitely incorporated in the property institution as an indispensable element, and one deserving of large rewards.

The greater the risk, the greater the rightful profit, and in consequence, the greater the inequality of wealth. Obviously if the risks and chances in business could be reasonably and substantially reduced, the inequalities of wealth might be reduced accordingly. It has been proposed that in important business undertakings the government might underwrite the venture, and by a form of public insurance, reduce unnecessary risks and chances. The government in certain ways has already taken steps in this direction. The Federal Reserve System has in a very far-reaching way reduced risks in the field of banking and credit. The Interstate Commerce Commission and federal legislation guaranteeing minimum returns to railroads have fundamentally modified the nature of risks in that branch of economic enterprise. Outside of government support, the principle of insurance has been extended over one risk after another in business undertakings. Fire, accident, health, and executive or managerial insurance,—these represent a steady

⁴³ *Great Fortunes, The Winning and Using*, p. 41.

⁴⁴ *Cannan's Wealth*, p. 187.

expansion of the insurance principle. "Cannot a similar principle be applied to the risk of industrial loss? If it were possible to guarantee every *entrepreneur* at least his operating expenses, including depreciation, the loss would be minimized."⁴⁵ The proposal is only in the stage of discussion, but its fundamental principle appears to be essentially sound from an economic point of view. If it is worked out practically in the course of time, the effect upon the inequalities of wealth would be of importance.

The three main groups of causes of inequalities of privilege, namely, inheritance, monopoly, chance, are not static, fixed causes. They are elements in the whole institution of property and under the pressure of the dynamic social and economic movement of the times, they are open to constructive modification.

Inequalities of Fortune Due to Unequal Abilities.—The psychology of individual differences has demonstrated marked inequalities in native intelligence and native ability. The technique of mental tests has been abused by many pseudo-psychologists, and such abuses have threatened to bring the whole principle of mental measurements into disrepute. However, to the cautious student, such abuses should not cause a neglect of the underlying elements of fact. From a conservative standpoint, mental measurement may be accepted as a useful scientific instrument.

The technique of mental measurement made its greatest advances during the war, in the army mental tests of the drafted personnel. Over 1,700,000 men in the army were put through these tests, and their mental abilities were recorded and classified. The draft troops were representative of all classes and strata of people and it may be assumed therefore that the findings for this group represent with approximate accuracy the findings that would be arrived at if it were possible to apply the test to every individual in the country. It should be borne in mind, too, that intelligence tests are not tests of memory, or of knowledge, or of feeling, but of the power of the mind to think.

The plain facts revealed by these comprehensive tests are briefly as follows: About 10 per cent of the population of the country are of very inferior intelligence. The best of this group are unable to get beyond the third or fourth grade in school, no matter how long they attend, and the others are either on the border line of mental deficiency or are feeble-minded. Their mental level is comparable to that of a child of ten years or less. More striking than these facts are the numbers of those individuals in the country whose mental level is comparable to that of a child twelve years of age or less. Forty-five per cent of the population are limited in intelligence to that level. Seventy per cent of the population register an intelligence equivalent only to an age of fourteen years or less. At the top of the rating scale are a group of people of very superior intelligence amounting to four and one-half per cent of the total population. And just below this grade of intelligence are a group whose mental level makes them average college material,

⁴⁵ David Friday, *Profits, Wages and Prices*, Chapter XIV.

amounting to 9 per cent of the population. The sharp contrast between the two extremes of very superior and very inferior intelligence, and the enormous proportion, nearly one-half, of the total population, showing only a very moderate intelligence, give a fairly definite basis for a conception of the great inequalities of intelligence.

The upper grades of intelligence furnish the leadership of society. From these grades come the great statesmen, educators, lawyers, doctors and business executives. To the extent that these groups of high mentality are elevated to positions of power and responsibility, there is some assurance of efficiency in economic and social organizations. The grossest incompetencies occur, however, when individuals of low mental ability have power and responsibility thrust upon them. Democracy requires that the influence of these men in the highest levels of intelligence shall be paramount, for the influence of the lower levels is predominantly non-rational in character. The lowest 10 per cent in the army were deemed unfit to send overseas. They are scarcely able to behave with the minimum of self-guidance necessary to get along in industry under favorable circumstances; and under unfavorable circumstances, they become the glaring misfits and frequent tragedies of the industrial system. Just above this lowest 10 per cent is a group of 15 per cent of the population slightly but not much better off. This group includes many foreigners and many who are illiterate. They are weak in initiative and show very little resourcefulness. To get along in their jobs successfully they require close supervision by men who understand sympathetically their limitations. The grades just above this level suffer from similar limitations and handicaps in diminishing degrees. Industry abounds with individuals who cannot restrain themselves from outbursts of temper or from irrational obstinacies; with individuals who repeatedly make mistakes and who require an unusual amount of training before they can perform their work habitually and well; with individuals who are unable to think their way out of difficulties, but who blunder and fumble through, at great distress to themselves and their families and at great waste to society. The science of personnel administration is a serious attempt to understand and control the great inequalities of intelligence for the greater satisfaction of the individual and the greater efficiency of economic society.⁴⁶

These facts indicate how misleading it is to make sweeping references to "the people" or the "masses" as if they were all on a dead level and all alike. Difference, not uniformity, is the cardinal feature of the human equipment, and the inequalities of intelligence between various mental levels give the real character of the human nature which is of interest to economics. The inequalities of intelligence are matched

⁴⁶ The psychologists are not agreed as to the significance of mental tests. Many competent authorities deny that such tests really measure intelligence. Undoubtedly the supporters of the tests did for a time greatly over-rate their value. Many absurd claims have been made for the tests. The author here accepts only a moderate and conservative version of intelligence tests, such as he believes to be supported by the more careful students of the subject.

by the inequalities of all the phases of human capacity. The entire human equipment of each individual qualifies that individual to assume a certain amount of responsibility and no more, and the prime task of economic democracy is to adapt the distribution of power and responsibility in economic life to the unequal distribution of human equipment.

It takes brains to earn a million dollars. The wage-earner at the other end of the scale has limited imagination, ability, initiative, and sagacity. He is poorly educated, and in the day's work has ambition ground out of him. Only in exceptional instances do there appear the men of indomitable energy who by their own merit force their way from poverty to riches. But it is this exceptional man whose ability is urgently needed for the smooth working of the economic organization and whose genius should be encouraged and evoked by the property institution. It is natural that when men of strikingly unequal native ability struggle for the same prize, the man of superior ability should win out. The freedom and rights of property encourage many men of superior gifts to exert their strength to the utmost. The rewards are high and success is a sure claim to social distinction.

A feature of this situation which is not often contemplated is the universally accepted conviction that the ability of a wage worker can never be great enough to deserve more than three or four thousand dollars a year. Superior endowment as a machinist, splendid gifts as a worker, the finest eye and most skilled hand all reach their limit of deserved reward, usually before a \$2,500 wage is reached, certainly before a \$5,000 figure is reached. No matter how great his ability as a laborer, he cannot actually earn beyond certain very narrow limits. It is only ability as a manager or director or property owner which earns the largest returns. This social maxim has become so axiomatic that it seems as natural as the air we breathe. We think nothing of it. The financial reward of a million dollar investment is not infrequently greater than the financial reward of a score of the most competent skilled laborers. The property investment of that amount is entitled to earn anywhere from 4 per cent to 4,000 per cent, but the finest ability of a score of laborers commands no such unlimited right of return. This idea is simply a matter-of-fact principle which every one takes for granted, and it obviously plays a part in the inequalities of wealth which prevail everywhere. Even a second-rate managerial ability is usually conceived as deserving a higher reward than the best type of manual dexterity or workmanship.

Income from investment need not be accompanied by any substantial exercise of ability or effort on the part of the owner. Clever management of property will make it accumulate more rapidly. But such managers can be hired at a salary, and their salaries are a truer measure of ability than is the property income which goes to the owner.

It should be noted too that these inequalities of ability tend to perpetuate themselves. The children of the unskilled laborer inherit a family and social environment which tends to hold them to that level.

"There are no absolutely insurmountable barriers preventing those who are born into poor surroundings from forcing their way into the best paid professions if they have exceptional ability and grit, and there is nothing to prevent exceptionally incapable persons born in good surroundings from falling into the lowest class of workers. But all the same, it is, as every one knows, a great advantage to the ordinary person in the matter of earning his living, to be the child of fairly well-to-do parents, and an enormous disadvantage to be the child of parents belonging to the poorest class."⁴⁷

There is a great reserve fund of ability in the lower-paid classes which is never developed. Lack of encouragement, of education, of opportunity, leaves enormous resources of ability untapped. The inertia of class habits, the barriers of tradition and custom, the difficulties of the struggle upward,—all such factors prevent great dormant capacities from ever being kindled into irresistible ambitions to win the highest rewards of economic activity. The degree of success achieved by the present economic system is largely due to the fact that in spite of all such barriers and obstructions the business world does arouse the energies and ambitions of enough men of great ability to win their way from the bottom to the top so that it constantly recruits a reasonable amount of able leadership.

A caution should be observed in usage of the term "ability." What people ordinarily refer to as "the reward for ability" is in reality "the reward for scarcity." It is the *scarcity* of certain forms of ability which enables them to gain a high money return. If managerial ability were as commonplace as unskilled labor, it would be paid on the same level. Inequalities of fortune are traceable to unequal *scarcities* of different kinds of ability. In economic usage, diverse abilities as such are incommensurable. No one can measure by any common standard the relative abilities of an artist and a captain of industry, of a dean and a football coach, of a lawyer and a preacher. But owing to the various scarcities of these various forms of ability, different degrees of reward are gained. The concept of ability must be closely linked with the concept of scarcity, if we are to understand the relationship between inequalities of fortune and inequalities of ability.

Conclusion.—The inequalities in the distribution of wealth are due to institutional factors and to differences in native ability. Institutional factors enter into all phases of the modern private property régime. A more democratic distribution of wealth is possible through modification of property institutions. Whether or not the ideal of such a distribution is desirable is largely an ethical question. But whether or not the ideal can be accomplished is an economic question. The answer to the

⁴⁷ Cannan, *Wealth*, Chapter XII. Space does not permit a fuller analysis of this very important factor in income inequalities. Special discussions of much value will be found in Dalton's *The Inequalities of Income*, pp. 239-270; Taussig's *Principles of Economics*, Chapter 54; Pigou's *Wealth and Welfare*, and Watkin's *Growth of Large Fortunes*.

economic question would seem to be that a more democratic distribution is possible.

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CHAPTER XXIV

PRINCIPLES AND PROBLEMS OF MANAGEMENT

The economies of a previous period classified the factors of production under three headings,—land, labor, and capital. The economic developments of recent years have brought to the front a fourth factor, management. Management is in one sense a subdivision of labor. It is labor of a primarily intellectual kind, concerned with the direction, supervision and control of ordinary skilled and unskilled workmen. The remuneration of management is a salary, but in all essential respects, the salary is determined in exactly the same manner as wages. In fact, the remuneration may be included in the economic phrase, “wages-of-management.” Different grades of management exist and marginal productivity determines the different rates of salaries for the respective grades. Since these problems have already been discussed in chapters dealing with wages as a share in distribution, there is no need to discuss at this point the forces governing the distribution of salaries.

Although for purposes of distribution theory, management is merely a subdivision of labor, nevertheless for other purposes management is to be viewed as an independent factor in production. The task of management is intimately related to land, labor, and capital, yet is something apart from any of them. Management exists primarily for the purpose of bringing into balance all of the multitudinous forces which play a part in the success or failure of the modern business concern. Management is responsible for bringing order out of a chaos of scattered elements. Management functions by unifying, correlating, organizing and administering the sum total of economic factors which comprise a modern business establishment. Land, labor, and capital are, none of them, taken singly, capable of complete self-management, but they depend upon a body of administrators and governors who are especially qualified for the managerial supervision of all the activities of the business concern. The significance of the modern function of management is comprehensively appraised in the following statement by Louis Brandeis: “The coming of the *science of management*, in this century, marks an advance comparable only to that made by the coming of the *machine* in the last.”¹

In some cases, large property owners have proved competent to direct and manage their own properties; in most cases, groups of property owners have hired salaried managers, whose ability, character and

¹ *Business a Profession*, pp. xlvii, 2-3.

experience especially fitted them to perform the functions of management.

The Size of Management.—The problems of management are in great measure a reflection of the size of modern business establishments. Everybody knows that business combinations and large establishments are typical of the present economic system. This popular impression overlooks, however, the important fact that small business establishments are not by any means a thing of the past. Statistics for 1919 show that in the United States there were in that year no less than 141,742 manufacturing establishments which employed less than six wage earners each. A manufacturing establishment employing not to exceed one hundred wage earners would not appeal to the average imagination as a large enterprise; but it needs to be remembered that in 1919 there were 235,464 establishments no larger than that. The small establishment is not dead and gone. These smaller establishments comprise 95 per cent of all manufacturing concerns in America. On the other hand, the relatively few large establishments represent such vast fields of manufacturing enterprise that they employ the great bulk of the wage earners of the country. The remaining 5 per cent of establishments employ fully 70 per cent of the wage earners. Another comparison of figures indicates more strikingly the scope of the large business units. The 2 per cent of the establishments of the country which are the largest employ more wage earners than the 95 per cent of smallest establishments. Moreover, over nine-tenths of the annual product comes from plants which individually turn out each year goods valued at more than \$100,000. Nearly three-fifths of the annual product comes from plants whose individual output each year exceeds a value of \$1,000,000. In 1919, 3.6 per cent of the establishments employed 56.9 per cent of the wage earners and turned out 68.7 per cent of the product. Hence, the great bulk of wage earners are employed in establishments which hire hundreds or thousands of workers, and the main portion of the national product is made in establishments whose annual output has to be figured in hundreds of thousands or millions of dollars. The little establishments flourish, and in total numbers of individual plants show impressive figures; but when they are measured by the work which they do, by the workers they employ, by the value of their output, they are seen to be a minor part of the productive equipment of the nation. The major industrial activity of the country is the activity of big business, and for a clear conception of the true state of the economic organization, it is imperative that the facts about the relative size of business establishments should be kept well in mind.²

The main trends toward business concentration have been comparatively recent. Industry during the Civil War period was conducted by small establishments for the most part. Since that time, in thirteen leading lines of industry, the number of wage earners in the average plant has increased seven times over, the value of the output of each

² See *Statistical Abstract of the United States*, Annual.

plant nineteen times, and the amount of capital thirty-nine times. This industrial evolution in the direction of concentration began to attract attention during the eighties of the last century. The trust movement came into notoriety during the next decade, and as the trust fell under the ban of the law, the late nineties and the first years of the new century witnessed the development of holding companies and consolidations of one sort and another. Combinations came swiftly during periods of prosperity, but were rarely formed during years of panic or depression. The great era of consolidation in this country was the fifteen years preceding the depression of 1903. That depression slowed up the combination movement, and from 1903 down to the opening of the European War, the business consolidations were less extensive. The war period gave new impetus to combination in many lines. It is essential to remember that the business combinations of the present day are the creation of the last thirty years of economic history, and that most of the fundamental consolidations were pretty definitely determined during the first half of that thirty-year period.³

Caution is necessary in making sweeping references to industry "as a whole." Part of industry may be moving in one direction while the rest is moving in another direction. The Bureau of the Census, from a study of developments in eighteen industries between 1899 and 1919, reaches the following conclusion: "The records of these eighteen industries have indicated wide differences in the nature of industrial development. Certain industries—those manufacturing salt, beet sugar, leather, woolen goods, automobiles, iron and steel, and coke—have shown notable increases in average size of establishments. Other industries, such as slaughtering and meat packing, artificial ice, cotton goods, and boot and shoe manufacture, have maintained a more nearly constant level in size of establishments, and the silk, lumber, carriage and wagon, and ship-building industries have recorded tendencies to decrease in average size of establishments."⁴

A large number of industries show a definite tendency to *small scale production*. The Census Bureau records in this list the following branches of production:⁵

Artificial flowers	Grindstones
Belting leather	Lard, not in meat packing
Canning and preserving oysters	Mirrors
Clothing, women's	Nets and seines
Copper, tin, sheet-iron work	Paving materials
Corsets	Rules, ivory and wood
Cotton lace	Smelting and refining, lead
Fire works	Wall paper, not in mills
Gold and silver, leaf and foil	

³ See A. Dewing's *Financial Policy of Corporations*, IV, 33-41; Ripley's *Trusts, Pools and Corporations*, Introduction; I. Lippincott's *Economic Development of the United States*, Chapter XXI; C. E. Van Hise's *Concentration and Control*, pp. 35-59; J. W. Jenks, *The Trust Problem*, Chapter I.

⁴ *The Integration of Industrial Operation*, 1920, Census Monograph, III, p. 74.

⁵ *Ibid.*, p. 84.

The actual amount of industrial concentration in the United States has been estimated by the Census Bureau. The method of making the estimate involves the use of "central office groups" as the unit of calculation. A central office group exists where two or more industrial establishments are operated from a single central office. The degree of concentration of such groups in the field of manufacturing is indicated by the following table:

Industry	Per Cent of All Manufacturing Establishments in Each Group Found in Central Office Groups	Average Number of Establishments per Central Office
All manufacturing	7.4	3.68
Food and kindred products	7.4	4.15
Textiles and their products	9.9	3.07
Iron and steel, and products	8.0	3.44
Paper and printing	2.5	3.36
Chemicals and allied products	19.7	3.83
Railroad repair shops	78.1	9.89
Metals, and products, other than iron and steel	4.2	3.74

The extremes of concentration are found in chemical manufactures and railroad repair shops. The extremes of decentralization are found in paper and printing. The degree of concentration clearly varies widely from industry to industry.⁶

Over two-thirds, or 68.8 per cent, of the central office establishments, are limited to one single line of industry. For the most part, this means that these establishments are *horizontal* combinations. Nearly one-third, or 31.2 per cent, of the central office establishments operated two or more lines of production. In general, this group of concerns represent *integration*, or *vertical* combination. Of the ten most complex groups, one has establishments in thirteen different industries, three have establishments in twelve different industries, two have establishments in eleven different industries, and four have establishments in ten different industries. The most complex integrated industries are lumber and its manufactures, iron and steel and their products, and vehicles of land transportation. Seventy per cent of the raw material used in saw mills

⁶ The deviations from average are shown by the following table:

Number of Establishments Operated	Per Cent of All Central Offices
1 to 2	61.3
3 to 5	26.9
6 to 10	7.3
11 to 15	2.0
16 to 25	1.4
26 to 50	0.8
Over 50	0.3

is produced by the owners of the mills; 23 per cent of the raw material used in paper mills is produced by the owners of the mills; 46.8 per cent of the cane sugar used in refineries is grown on plantations controlled by the refiners.

The central office groups contain 7.8 per cent of all establishments, employ one-third the wage earners, and turn out one-third the product.

The estimates here given afford a picture of the degree of concentration in modern American business. On the one hand, we find hordes of small individual enterprises turning out in the aggregate a relatively small product; on the other hand, we find a relatively few large enterprises turning out the bulk of the product. But differences appear between industries, and care must therefore be observed in making generalizations about "industry as a whole." Individual differences as well as mass tendencies must be recognized.

Classification of Types of Management.—The various sizes and kinds of business concerns have brought into operation widely varying types of management. On broad lines of classification, the three outstanding types are the individual, the partnership, and the corporation.

In the individual type, the owner and the manager are usually one and the same person. The individual carries on the business with his own brains, largely with his own money, and upon his own responsibility. For the most part, this type of management is suited to relatively small enterprises. Agriculture is largely under the individual type of management, and a substantial portion of retail trade is conducted by individual merchants. But in manufacturing, less than 6 per cent of the total national product is made under the individual type of management. The individual managers usually have small plants, and the lines of manufacture where the small individual management survives in largest numbers are such as baking, clothing, printing, dairy products, blacksmithing, and the like. Individual management normally has the advantage of the direct, personal, immediate attention of the man whose whole fortune is at stake. It rests upon highly commendable qualities of character such as thrift, initiative, honesty, responsibility, and by providing an opportunity for men to make good in business in a small way, it often brings men of ability to the attention of larger establishments. Small business is in many ways a training ground for and a stepping stone toward promotions into the more difficult managerial positions of larger business units. From an economic point of view, it is of the utmost importance that the big business concern should not develop in such a fashion as to block the way for men who desire to set up businesses of their own. The hundreds of thousands of small individual managers deserve as much freedom of opportunity to make good as can possibly be given them, and the practices of big concerns cannot be allowed to choke out reasonable opportunities for small ones to get ahead by efficiency, foresight, and good judgment.⁷ The small business man in his individual plant has a part to play in economic life which, in

⁷ See Woodrow Wilson, *The New Freedom*.

its own way, is just as important as the part played by larger types of management.

In the partnership type, two or more individuals unite their capital or their ability, or both, and overcome some of the fundamental limitations of individual management. As business becomes complicated, the single individual is apt to find the problems too great to be solved effectively by one mind, and management may often be made more efficient by combining the ability and judgment of different men. At the same time, the single individual is likely to reach a point where his individual capital is inadequate to finance the business, and the associated capital of partners aids in solving the problem. The ordinary partnership stands in the eyes of the common law as a financial unit. A contract by one of the partners binds all, and in case of insolvency each partner is liable, not merely to the amount which he invested in the business, but to the full amount of his total property. Partnerships appear to be diminishing in importance relative to other types of management. Their chief field is moderate sized mercantile and manufacturing enterprises, and the legal and other professions. In 1900, partnerships produced 19 per cent of the total value of all manufactured products, but in 1914 the share of the total produced by partnerships had shrunk to 6.6 per cent. As in the case of individual management, the function of partnerships is important, even though overshadowed by other types of management, and a fair and open field for the partnership, wherever it represents economic efficiency, is thoroughly desirable.

The paramount type of economic management is the corporation. By the statistics of 1919, corporations produce 87.7 per cent of the total factory product. A corporation comes into being by a special charter granted by a state. Some of the chief characteristics of the corporation are as follows: (1) the joint stock principle of ownership, under which a scattered number of individuals may invest their money in a unit business undertaking; (2) centralized management of the capital owned by the numerous investors, under conditions which tend to bring about reasonable efficiency and proper security; (3) continuity of existence, since if one corporation official resigns or dies, a successor is promptly chosen, while the life of the corporation goes on unbroken; (4) limited liability of the owners of the corporation capital, in that each investor is liable, in case of insolvency of the corporation, only to the amount of his individual investment; (5) a distinctly corporate identity, in that the corporation acts as a legal person, as a business unit, as an entity separate from its constituent investors and directors.

The Evolution of Forms of Combination.—The corporate type of management represents the effort of business judgment to cope with the problems of directing and controlling an economic system constructed upon a foundation of machinery, natural power, and applied science. Individual financing and management of the large-scale establishments necessary to the most efficient production was clearly impracticable. It became necessary to assemble the savings of many individuals for con-

centrated investment. The savings of armies of small investors could be heaped together, and used to supply the capital for large business undertakings. The corporation supplied a large scale system of management simultaneously with the large scale production of wealth under the régime of machinery and science.

As business combinations became greater and greater, several adaptations of the corporation principle seemed necessary to business men. One of the earliest of these was the pooling agreement. *Pools* are agreements between business concerns, whether corporations or otherwise, to follow some concerted policy of price fixation, or of limitation of output, or of consolidation and pro rata sharing of profits, or of division of territory between companies. The agreements could not be enforced by law, and hence were very unstable since any member of the pool could withdraw whenever he considered it for his best interests to do so. Pools were of questionable legality, and usually had to be operated secretly. During the eighties, corporations adopted the principle of the trust as a more stable and solid means of combination. Under the *trust*, the stockholders of each company turned their stock over to a small board of trustees, who were empowered to direct the affairs of the group of companies. Stockholders received in exchange for their shares of stock, trustees' certificates, on which they drew dividends virtually equivalent to the dividends on the former shares of stock. This centralized the management of the constituent corporations effectively, but when the trust method came up for the consideration of the courts, it was declared illegal, and gradually had to be abandoned by the bulk of corporations.

Business men then looked around for some method of combination among corporations which would stand the scrutiny of the courts and be within the law, but which would secure the advantages of combination of management. In some cases, *communities of interest* were formed, under which business men bought up controlling interests in the corporations which they desired to direct, and without any formal organization worked in unison in the management of the various companies. This form of centralization was at best somewhat loose and intangible, and many corporations found it more desirable to combine by creating holding companies. A *holding* company was a new and distinct corporation, whose purpose was to own at least a majority interest in a group of corporations which it desired to control. The holding company, by its controlling stock ownership, could elect the boards of directors of the constituent companies, and definitely, tangibly and decisively centralize the management of the entire organization. Each member corporation could retain its identity, and have its separate board of directors, and its own executive staff, but they in turn would be elected, and governed in their general policies, by the official powers of the central holding corporation. The United States Steel Company is the largest example in American industry of the holding company, and by the decision of the United States Supreme Court on March 1, 1920, this company was declared legal, on the ground that "the law does not make

mere size an offense." If a holding company used its size and power to restrain trade unreasonably or to exert undue monopoly influences, it would then become illegal. Some business men have preferred, in place of such a form of combination, a form by which outright amalgamation could take place. By *amalgamation*, a new corporation is formed to buy openly and fully a group of companies. The old corporations lose their separate identities, and are completely consolidated, in ownership and management, in the new corporation. Closely similar to the amalgamation is the merger. Under the *merger*, one corporation already in existence buys up one or more other corporations and assimilates the outsiders into its own organization. The corporation which undertakes the merger simply stows away inside itself some separate corporations, and all are merged into a consolidated ownership and management.

The cardinal economic significance of the variety of forms of corporate combination is that the modern production process has set up forces which demand a high degree of concentration in the control of economic activity. The men of business genius who built the great corporations found themselves face to face with the need for an adaptation of the corporation principle on a yet larger scale to the demands of modern industry. They experimented with various devices of combination, and by methods of trial and error, adjusting themselves to restrictive legislation and court decisions, they endeavored to solve the economic problems which confronted them. The forces of economic evolution moved in the direction of concentration of ownership and management, and the various types of corporate combination were illustrations of the efforts of the creative imagination of business leaders to cope with the economic conditions of their generation.

The Mechanism of Corporate Management.—The corporation has developed a mechanism of management which in its fundamentals is fairly uniform throughout corporate industry. In its simplest elements, this mechanism involves a mass of stock owners, who elect a board of directors, who in turn give some attention to the broad policies of the corporation, particularly the financial policies, and who delegate the active management of the corporation to a group of appointed executive officials. These executive officials, in their turn, choose departmental and bureau chiefs, superintendents, bosses, foremen, and laborers, and have charge of the operation of the business. This general scheme of management is subject to diverse adaptations in the actual conduct of corporate affairs, and it is necessary to study the strategies and peculiarities of corporate management in actual practice in order to have a realistic understanding of the situation.

The body of stockholders exert very little authority in choosing the board of directors. They have the right to vote, but as the day for voting approaches, the stockholders receive a legal form to be signed and returned to some one actively interested in guiding the election. This legal form is a proxy, giving to the actively interested party the right to cast the votes belonging to the individual shareholder in any

way that may be desired. The full bearing of this practice is well indicated in an examination made by the Federal Commission on Industrial Relations of a corporation lawyer of wide experience, Samuel Untermyer. Mr. Untermyer stated that "stockholders do not get a 'look in'—the scattered stockholders—as a result of the system. What is the system? The management send out proxies every year, and the proxy is a power of attorney to some one they name. If you are a stockholder, you do not know to whom you are giving your proxy. It does not usually run to the man in control, but to some one nominated by him. You do not know for whom he is going to vote as a director. You send a power of attorney for him to vote for whomever he pleases." Question: "Is it not a fact that the proxy system has become so universal that every country bank or every country corporation almost, large and small, when giving a notice of stockholders' meeting, sends attached, and usually a part of the sheet as a notice of that meeting, a proxy?"

Mr. Untermyer: "That is the custom now with notices of meeting, the proxy generally goes out."⁸

This system of proxies gives the real authority in management to inside parties who desire to maintain control of the policies of the corporation. If the inside parties are men of fine integrity and a high sense of responsibility, all goes well, but if they are not, the corporation is open to speculative interests, and all kinds of abusive policies. This situation is due originally to the natural inertia of the mass of stockholders. As was explained by a prominent banker and director of a number of large corporations, Mr. Jacob H. Schiff: "I believe that the weakness of the whole system is the human weakness, that stockholders, as long as things go right, do not pay any attention to the management of their property, and that only when things go wrong they come to realize that they are stockholders, and that they should not have permitted their property to be controlled by those who have wrongly or badly managed it."

It is because of this inertia of the stockholders that it is possible for small minority holdings of stock to dominate the policy of the whole corporation. This fact is expressed by Mr. Brandeis, now Justice of the Supreme Court, as follows: "As a matter of fact, most stockholders do have very little to do with the management, and in these great corporations they have practically nothing to do. . . . I think it is true not only of these very large corporations, but of very much smaller corporations in which the stock is listed and widely distributed, that not only a small percentage of the stock may give control, but that for a long series of years control is held sometimes without the ownership of any stock whatsoever, or of practically no more stock than is necessary to qualify directors. Such a wide distribution of the stock dissipates altogether the responsibility of stockholders, particularly of those with five shares, ten shares, fifteen shares, or fifty shares. They recognize that they have

⁸ *Report of Federal Commission on Industrial Relations*, 1915, Volume 8, pp. 7438, 7466.

no influence in a corporation of hundreds of millions of dollars capital. By the distribution of nominal control among ten thousand or a thousand or a hundred thousand stockholders, there is developed a sense of absolute irresponsibility on the part of the person who holds that stock.”⁹ And Mr. Untermeyer said, in discussing the same subject, that “nearly every railroad corporation in this country is controlled with less than 10 per cent of the stock in the hands of all the officers and the board of directors put together.”¹⁰

What, then, is the background, experience, and outlook of men who commonly hold positions on the boards of directors of large corporations? Broadly speaking, they are men who are intensively acquainted with questions of finance, of investment, of credit, of banking and the like, but not men who are familiar with the technology of production, or with the deep problems of labor administration. The board of directors meets as a whole only a few times during the year, but it appoints an executive committee to meet oftener, and to decide questions which do not demand the attention of the whole board. This executive committee is apt to be primarily a finance committee. As John D. Rockefeller, Jr., stated: “The directors attend principally to the financial affairs of the corporation, leaving the actual conduct of operations to the officers. . . . It is not customary to submit labor policies to a board of directors for action. Conference regarding them is often had with the directors or executive committee at the instance of the officers, and suggestions are made to the latter by both these bodies.”¹¹ Roger W. Babson states that “the financial interests have nothing against labor. . . . But it is indifference with them. Their job is to get dividends . . . when they have earned dividends, they consider their work is done.”¹² Mr. August Belmont, from active experience on many boards of directors, declares that “a director rarely has to do with labor matters in a corporation unless by chance they are brought to his attention for the purpose of a decision as to the merits of something that may bring about a strike or something as serious as that.” And questioned in regard to making inquiries in a given corporation about wages, hours, unions, and working conditions, he replied that “as chairman of the board, that is not part of my duty.”¹³

Likewise, the technology of production, problems of transportation, or processes of manufacture are foreign to the interests of the average director. This separation of functions is candidly admitted by Daniel Guggenheim, a corporation magnate acquainted with the practices of typical corporations from experience and first-hand observation: “Our business as regards directors is somewhat different from almost all other industrial corporations in this regard: Of the many directors—we have over twenty—with the exception of two or three they are all men

⁹ *Federal Commission on Industrial Relations*, Volume 8, pp. 7660-7661.

¹⁰ *Ibid.*, p. 7438.

¹¹ *Ibid.*, p. 7764.

¹² *Ibid.*, p. 7455.

¹³ *Ibid.*, pp. 7547-7551.

familiar with the business, having been brought up in the business, and are technical and practical smelting men.”¹⁴ This distribution of duties and functions is fundamental in an understanding of corporation management. It was the testimony of experienced directors of corporations before the Industrial Commission that most directors confine their attention to questions of dividends, credit, and finance, and this can be done from offices in the big financial centers of the country. It is for this reason that they are so often termed “absentee directors.”¹⁵ This division of functions has the advantage of keeping production and labor matters in the hands of the officers on the ground, but this very practice may, and often does, prove a disadvantage, when the officers in charge at any plant hold reactionary views about labor, and are stolidly ultra-conservative in treating fundamental production problems.

The real center of control is often hard to identify. Control is not in the hands of the scattered majority of stockholders; nor is it evenly distributed among the several directors. Usually there is some dominating interest which openly or quietly exerts the controlling influence in the affairs of the corporation. But in not a few cases, a search for the real power in the affairs of the corporation would lead the inquirer to conclude that the real governors of the corporation are undiscoverable. Some of the difficulties of finding the real locus of power will become apparent from a review of certain basic factors connected with the organization of corporation finance. The bondholders of the corporation have no right to vote for directors. They are looked upon as having made a loan to the corporation, and in their status as creditors, they have no right to a voice in managing its affairs. With railroads, and some of the more conservative industrial corporations, bond issues may make up a large part, in many cases, the greater part of the total financial resources. During recent years, corporations have frequently denied voting powers to the preferred stockholders, thus putting them on essentially the same footing as the bond creditors. Voting power is reserved for the holders of common stock, and when it is remembered that this represents usually good will, patents, and intangible assets generally, it will be obvious that the power centers in the holders of a controlling fraction of the common stock. The owners of the factory, of the machinery, of the equipment, of the raw material, and of tangible property generally are the bondholders and the preferred shareholders, but these owners of the real property of the corporation, in an increasing number of cases, have no voting powers. Voting powers are reserved for those who own that part of the capital securities which represent the estimated value of trade marks, of patents, of monopoly advantages, and of good will generally. To realize the full effect of this device, it is necessary to observe that at the time of the promotion and formation of the corporation, it is usual for the banker and promoter to award them-

¹⁴ *Federal Commission on Industrial Relations*, Volume 8, p. 7561.

¹⁵ See testimony of Jacob Schiff, *ibid.*, Volume 8, p. 7523.

selves a substantial block of common stock as a bonus or remuneration for their services in setting up the corporation as a going concern. By retaining this common stock, and confining the voting power to the common stock only, they can readily retain control of the business indefinitely. In many instances, the voting power is given to both the preferred and common share holders, but the amount of common stock issued by the corporation is so large in proportion to the preferred issue that the common retains control of the business.¹⁶

Another factor in the control of corporate policy is found in the system of reorganizing companies which go through receivership and insolvency. It is estimated that more than one-half of the railroads of this country have at one time and another passed through the hands of receivers, and a remarkably large number of industrial corporations have travelled the same course. Under a receivership, a bank is called in to rehabilitate the finances of the corporation, and commonly a voting trust is established. Under the voting trust, the stockholders of the insolvent corporation assign to a committee of trustees the power to direct the affairs of the corporation, at least until such time as it shall again be on an efficient basis. This committee of trustees is under the control of the bankers who are reconstructing the finances of the corporation. When the voting trust expires, it is natural for the bankers to desire to assure continued solvency of the corporation and to make certain that its affairs are not conducted in such a way as to fall again into bankruptcy. The only way of accomplishing this is to hold an influence over the board of directors of the revived corporation. It will be clear, therefore, that both as a result of the influence of bankers in starting a corporation when it is first promoted, and as a result of their interest in perpetuating their influence following receivership and reorganization, the bankers tend to acquire a large control in the affairs of the average corporation.¹⁷

More than this, corporations deliberately seek the appointment of prominent bankers to their boards of directors. The board needs the prestige which the names of the distinguished bankers can quickly give, and many of the directorate positions of bankers exist primarily for the publicity value which they carry. Again, it is important that a corporation should be in a position to secure at all times adequate credit to carry on its business, and banks which have representation on the board of directors are supposedly more ready to extend credit to the corporation. Moreover, in the very nature of corporation finance, the stocks or bonds of the corporation are frequently needed as a collateral security for loans made from the banks. The stocks lose their value for security purposes unless dividends are kept up. The stock market insists that dividends be forthcoming, and the bankers who are in charge of finances

¹⁶ See A. Dewing's *Financial Policy of Corporations*, Volume II, p. 47.

¹⁷ On this matter, see the testimony of Samuel Untermyer and of Jacob H. Schiff, *Federal Commission on Industrial Relations*, Volume 8.

are responsible for the maintenance of dividends. For all these reasons, bankers attain to a preëminent position of control or influence in great numbers of corporations.

The board of directors is likely, therefore, to contain people who are there simply for good looks' sake as well as those who are there to assert power. Boards of directors contain figureheads, dummies, puppets, and fashion plates, and they know their bosses, their inside interests, their lines of pull. Here and there is a dominating personality. The government of a corporation is not essentially different from the government of a political state. There is what Elihu Root has called "the invisible government" in politics, and the same thing exists in business. What part of the government of the corporation is visible and what part invisible will vary from company to company, and the invisible government may be just as efficient and as honorable as the visible. It is true as a general rule, however, that human nature runs to questionable policies more easily under conditions of secrecy than under conditions of publicity, and this human tendency underlies much of the speculative abuses and corporation wrongs which have been exposed in recent years. All of these considerations serve to explain why so many corporations achieve a high reputation for safety of invested capital and for financial efficiency, and why certain other corporations find it possible to abuse their opportunities.

The mechanism of management below the board of directors presents new aspects. The board appoints a president and certain major executive officials, who in turn choose the requisite subordinates and assistants. The president is the great coördinator of the component elements of the business organization, and the main point of contact between the business plant and the board of directors. There are certain basic managerial functions which have to be systematized and organized in any business, but the methods of organization are by no means uniform. The basic functions of any active business center around production, finance, accounting and sales, and these functions require on the executive staff a production manager, a treasurer, a comptroller, and a sales-manager.

The methods of delegating responsibility, of dividing and subdividing functions, and of fixing authority present many variations and adaptations. Until recently, the prevailing method was the "line" or "military" system of organization. Under this system, business was organized on the basis formerly characteristic of armies. Each official was in charge of every detail within a certain jurisdiction, and he had to be familiar with all details, and to settle all problems. The foremen and the managers had to be all-around men. But when business grew, and the technology of production, sales, finance and accounting became so intricate, no one man was capable of mastering all of the details and settling all the problems in his branch of the plant. Feeling a need for expert aid, managers developed a line and staff organization, under which the superintendents and foremen drew advice and guidance from special staffs of engineers, chemists, accountants, and experts of every description.

Authority, responsibility and function were still, however, generalized and broad. A further development has been the departmental type of organization, under which specialized functions are grouped and separate foremen placed in charge of each type of function. This is a step in the direction of outright functional management under which specialization is carried to an extreme. For example, a repair boss has charge of all repair work, a route clerk has charge of all planning, a speed boss is responsible for getting the work completed on schedule time, and so on. Most modern businesses conducted on a large scale combine features of different types of organization in an attempt to adapt the desirable features of each to their peculiar problems. Large scale production with its increase of technical complications has led to greater specialization of workmen, foremen and higher officials, and this intensive specialization of functions is one of the most important developments in the methods of the internal organization and administration of modern business.

Reasons for the Combination Movement.—The paramount force in driving business organization out upon the untried and adventuresome paths of combination was the menace of cut-throat competition. Toward the latter part of the nineteenth century, the adage that competition is the life of trade lost its meaning in a great many branches of business, and it was discovered that competition carried to an extreme was the death of trade. Corporations engaged in desperate price wars in the determination to take trade away from each other, with the result that an appalling number of failures occurred. In the sugar industry, out of a total of forty large competing refineries, eighteen went into bankruptcy in the three-year period from 1885 to 1887. The investigation of the general movement toward combination in American industry by a Federal Industrial Commission in 1900 led to the conclusion that “among the causes which have led to the formation of industrial combinations, . . . competition, so common, so vigorous, that nearly all competing establishments were destroyed, was to be given first place.” Even where competition did not have so destructive a consequence, it usually forced drastic reductions in profits, and raised the hazards of business to the maximum. The compelling, dynamic force behind the combination movement was the menace of a competition which threatened ruin to hundreds of business corporations. Combination was a life-saving endeavor. It was not entered into to satisfy the ambitions of idle dreamers, nor would it have been undertaken on so vast a scale merely in the hope of realizing superior gains. The “driving forces” which budged things and put the original vitality into the combination movement were the dangers of destructive, cut-throat competition. Combination was the only available means of self-preservation on a safe and profitable footing.

When the leading business organizers began to take account of the details of the situation, it appeared to them that combination would not merely perform the life-saving function, but would in addition yield distinct advantages in production and trade which would be measured by an imposing increase in profits and dividends. The suppression of

damaging competition and the prospective economies and advantages of large scale management were the two prime influences behind the combination movement. Combination was looked upon as a course of action which would not only save the lives of competitors, but would also bring in rich profits for the combiners.

The Advantages of Big Business.—There is no one best size for all business enterprises. The most advantageous size varies widely from industry to industry and from time to time. The best size of a steel plant may be several times as large as the best size of a garment factory. The best size of a railroad may be many times greater than that of a retail store. Moreover, in a single branch of industry, there may be a wide range of sizes within which advantage is about equal. An extremely large or an extremely small enterprise may be at a disadvantage, but for the mass of concerns in between small differences in size may be inconsequential.

It does not necessarily hold true in industry that the largest size is the best size. Various statistical studies that have been made of the rates of return on large and on small concerns indicate that the largest concerns probably earn a lower per cent on invested capital than do small or moderately sized concerns. Studies made by the United States Commissioner of Internal Revenue show a declining rate of profit on the investment as concerns grow to great size. Similar studies in retail trade point to a like conclusion.¹⁸ The law of diminishing returns applies to the size of management. Excessive size is penalized by diminishing gain. The law of diminishing returns operates to impose a drastic limit upon the most advantageous size of business units.

An analysis of the gains accruing to big business up to a certain point must be based on two distinctions. First, a distinction must be drawn between *productive* economies and *acquisitive* gains. The former have to do with the making of better product at lower unit cost. The latter have to do with the making of more money by price strategy and pecuniary artifice. Some gains of big business are due to cheapened production and better product; other gains refer to greater money profit without improvement of production. The former are a social gain, the latter are merely a differential gain by one party at the expense of another.

Second, a distinction must be drawn between the advantages of *large scale production* and the advantages of *business combination*. The former refer to economies in engineering, the use of machinery, the organization of production, when a large plant is used instead of a small one. The latter refer to economies in pricing, purchasing, selling, advertising, when competition of small units is superseded by the unified operation of large units and when centralized management supersedes decentralized management. In most cases, an admixture of both kinds

¹⁸ See R. C. Epstein, *Quarterly Journal of Economics*, Volume 39, pp. 263-4; *Statistics of Income*, U. S. Commissioner of Internal Revenue; Retail Studies by the Harvard Bureau of Business Research, and by the Northwestern University Bureau of Business Research; E. A. Lincoln, *Applied Business Finance*, pp. 589-619.

of economies is found. It is often difficult to distinguish the economies of combination from those of large scale production. It is difficult to define the boundary between productive economies and acquisitive economies. Nevertheless, these distinctions in the broad are clear and significant. They must be borne in mind in the following discussion of specific economies of big business.

(1) *Control of Raw Materials.* In lines of production where the cost of raw materials is a crucial factor in determining profit or loss, it is an advantage for large units to control sources of raw material. This advantage is best obtained through *vertical* combination, or business *integration*. The International Harvester Company has plants not only for the manufacture of farm implements but also for the mining of its own coal and its own iron ore. The United States Steel Corporation owns mines, mills, railroads, and ships. Sugar companies have sometimes bought up sugar plantations. The integrated industry frees itself somewhat from price fluctuations in raw materials, eliminates many of the costs of selling, and saves at least part of the profit which would otherwise be paid to related lines of business.

(2) *Use of Automatic Machinery.* By organizing for quantity output, a concern may be able to substitute automatic machinery for expensive labor. Standardization of processes, routine methods, mass output, lend themselves to large scale operation.

(3) *Substituting Capital for Labor.* Trades which require a heavy labor cost in proportion to capital are difficult to operate on a large scale. In order to expand the size of business units, it is necessary to minimize the labor factor in industry. Great aggregates of labor cannot be given the personal attention requisite to efficiency. Where capital can be made the main factor in production, large scale enterprise is likely to be effective.

(4) *Continuous Use of Expensive Machinery.* Expensive machinery may pay only when it can be operated continuously. A small enterprise is often unable to avail itself of the economies of such machinery, because of the large scale upon which the correlative processes of production would have to be organized. The large plant does not operate under this limitation. Big business thus permits the more profitable use of expensive machinery.

(5) *Business Control of Labor.* Since labor is organized in large units, business may find it necessary to organize on a like scale in order to maintain a balance of power. The warfare on unionism has at times been a strong incentive to business combination. The power of the large business to cope with labor unions is often a most attractive advantage.

(6) *Exploitation of By-products.* Meat packing, gas manufacture, petroleum industries, may be cited as illustrations of the ability of large business combinations to profit from the utilization of by-products. Large scale production permits the full time use of the equipment necessary for the manufacture of by-products. Waste is prevented, and economical output of the by-product is achieved.

(7) *Purchasing.* Big business can often obtain discounts on the materials bought by making contracts for huge quantities. Quantity buying is often cheap buying. Moreover, in some lines, the expert purchasing agent is able to survey the whole range of the market, locality by locality, and to make important savings by buying where prices are lowest. This advantage is commonly cited as being one of the main sources of profit to chain stores, department stores, and mail order houses.

(8) *Selling.* When a number of concerns in the same line of business compete with each other, each maintains a sales department and keeps salesmen on the road. The time and effort of each sales unit is directed toward keeping trade away from its rivals. A combination of units in the same line of business is called *horizontal* combination. Horizontal expansion eliminates the duplication of salesmen and sales effort.

(9) *Advertising.* Competing units spend much money in advertising in order to attract trade away from their rivals. After horizontal combination, competitive advertising is superseded by centralized advertising to boost the total sales of the whole business.

(10) *Financing.* Big business can often take better advantage of trade discounts for cash payment than can small business. Big business can secure capital more cheaply by virtue of the fact that it has a wider market for its security issues. Banks will underwrite their security issues and give them financial backing. The public will pay a higher price for the securities of a big nationally known concern than for those of a small, obscure one. Often, the directors of industrial corporations interlock with those of banks. Such alliances establish firm financial backing for big business.

(11) *Freights.* In an earlier period, trusts counted as one of their greatest advantages the rebates which they could secure from railroads. That discrimination has been eliminated. A combination can save cross-freights by filling each order at the plant nearest to the buyer. It can occasionally save by taking advantage of lowered rates on earload lot shipments. But an offset to these mild gains is found in the fact that the more an industry concentrates in a given area, the greater the distances from factory to consumer, and the greater the amount of transportation necessary for the conduct of business.

(12) *Insurance.* A concern having a large number of plants well scattered may take advantage of the law of averages by setting aside a moderate reserve to provide for self-insurance on its properties. The larger chain store systems and steel manufacturers exemplify the possibilities of this principle.

(13) *Experts.* Although the large concern cannot utilize the type of personal attention and interest that the proprietor of the small concern gives to his business, nevertheless it substitutes therefor the services of specialists and highly trained experts. The corps of expert engineers, accountants, lawyers, sales managers, purchasing agents, and other

specialists insure the highest types of ability in the management of the business.

(14) *Diversified Markets.* Combination may be necessary to enable an industry to survey the international market and to take account of the sectional differences in buying power at home. The broader the market, the more diversified the purchasing power upon which the business relies, and the more steady its volume of sales.

(15) *General Use of Patents.* When numerous independent plants consolidate, the patents and secret processes of each become the common property of all. This enables all concerns in the consolidation to use the most efficient processes of the whole group thus made available.

(16) *Laboratory Research.* The large corporations commonly employ high paid scientists in expensive laboratories to carry on research. The overhead of laboratory expense is too great for the small concern. Progress in many lines of industrial research has been traceable to the support given by large corporations.

(17) *Control of Customers.* Large concerns can often force customers to accept more favorable terms of sale. Customers can be forced to pay cash without the concession of drastic cash discounts. Moreover, pressure can be brought to bear more fearlessly to make creditors pay up. The large corporation can often place middlemen in a subservient position, and require exclusive contracts, and other specially favorable treatment.

(18) *Price Control.* The desire to control prices by controlling supply doubtless has been a dominant motive in a great many business consolidations. If business combinations had always been forced to rely solely upon the economies of production as a source of gain, many of them would never have survived. Their ability to succeed and endure has with surprising frequency not been their superior efficiency, but their superior ability to sustain prices above the point that would have prevailed under free competition.¹⁹ The element of monopoly which inheres in much of business combination leads to arbitrary price increases. This is not necessarily the general practice, but there is strong indication that it is not by any means infrequent.

The Part Played by Promoters.—The expected advantages of combination would probably never have made the strong appeal to the minds of business men which was necessary to launch the great combination movement had it not been for the fact that certain interested parties, promoters, took it upon themselves to “sell” the combination idea to the bankers, the investing public, the boards of directors, the owners, and all parties concerned. It has been repeatedly stated by economic students that business combinations owe their existence in every case to the constructive imagination and irresistible initiative of some one man, or some very small group of men. Business combinations

¹⁹ An interesting attempt to substantiate this observation is contained in Eliot Jones, *The Trust Problem in the United States*, Chapters 19-20.

do not come into being without creative effort on the part of somebody, and in the business world there are certain individuals who specialize in the promotion of corporate combinations. Often they are professional promoters whose special life work is conceiving and executing first one business venture and then another. The promoter may be a man of successful manufacturing experience, or an engineer, or a railroad executive. He may be actively engaged in a part of the business which he hopes to make a part of the prospective combination, or he may be a total outsider. Whatever his origin, he performs certain vital and indispensable functions. His mind originates and grasps the idea of the possibilities of the new business organization. The promoter is an inventor of a new business plan, of a new corporation project. The promoter has the love of creative, original achievement. He has unbounded originality, a power of vision, a prophetic judgment of the future, and a delight in setting out upon new and momentous adventures. Were it not for this type of personality, many of the most significant combinations would never be born.

But this is only the first stage of the promoter's task. He must collate a mass of statistical data, of financial evidence, of technical facts about production and marketing, and must fully acquaint himself with the basic policies of the branch of industry in which the combination is projected. From these facts, the promoter is able to explain convincingly the economics and advantages that will accrue from the new combination. It is necessary, also, to interest bankers in the project, and to evolve a financial plan for the capitalization of the company, and for the sale of security issues. The bankers undertake the execution of the financial part of the venture, usually through the formation of a syndicate of bankers to underwrite the stock issues of the new corporation. The syndicate of bankers thus accepts the responsibility of marketing the securities of the undertaking. The promoter has to persuade the owners and controlling powers in the separate companies to sell their properties, and this step is attempted through the securing of options giving the promoting interests the right to buy the properties at stated prices within stated periods of time. The promoter must have available satisfactory estimates of the probable earnings of the new company, and must be able to point out how and why these will almost surely exceed the combined earnings of the separate independent companies. To the owners of companies which have been suffering already from cut-throat competition, the opportunity to sell and to save their fortunes is most welcome. In other cases, intensive urging and much persuasive power has been necessary, and even coercion must at times be resorted to.

In order to carry through these difficult achievements, the promoter must be a person who commands the confidence of the people whom he is trying to combine. The promoter's task is "one that requires the very highest intelligence, and, as a rule, neutral parties—parties not interested, men of the intelligence and reputations to inspire unlimited confidence on the part of manufacturers, are needed to bring manufac-

turers together.”²⁰ The promoter performs a specialized function of the utmost importance, because any number of the most effective business combinations could not come about merely as a result of the natural forces of economic life, or of the menace of sharp competition. Some one has to take the initiative in overcoming the jealousies of men who have been desperate rivals for years; some one has to allay the skepticism which springs up at the suggestion of a new adventure, and to lift men out of the inertia and lethargy which exists everywhere. For this service to the economic community, the promoter exacts a profit, commonly in the form of a bonus of the common stock. His work is extremely precarious, and he is as likely to fail as to succeed. In the successful promotions, the promoter usually charges all that the traffic will bear, and secures an appropriation of common stock which is generous to say the least.²¹

Successes and Failures in Combination.—It is difficult to measure with exactness the extent to which the combinations formed under these conditions have realized the economies and advantages which were claimed for them. In so far as they aimed at the suppression of competition, they of course put an end to competition between the companies which came into the consolidations. However, they often found themselves face to face with a new competition in which the competing units were bigger. Even at the time of formation, it appears that the majority of the combinations controlled less than 50 per cent of the production in their respective lines of industry. It was comparatively rare for a combination to control more than 75 per cent of the product. The hopes of optimistic promoters and the dreams of corporation executives for a domination of the market and a control of a given branch of industry were scarcely ever fully realized. Many of the combinations which started out with the largest measure of control have experienced a marked shrinkage thereof in recent years. For instance, during its first years, the output of the American Sugar Refining Company was from 80 to 90 per cent of the sugar refined in the United States, but by 1921 its percentage of the total output had fallen to about 24 per cent. And the United States Steel Corporation, from making 50.1 per cent of the nation's iron and steel products in 1901, declined to 45.7 per cent in 1911. And yet, although competition was not suppressed by the large combinations, the more dangerous and destructive phases of competition were brought under restraint in large measure; and in the new era, large combinations were decidedly better able to protect themselves from the worst features of cut-throat competition. The inefficiencies of many oversized consolidations, the anti-trust decisions of state and federal courts, and the governmental prohibitions of unfair competitive methods have been causes behind the failure of so many combinations to realize in full their original hopes for the suppression of competition.

²⁰ Meade, *Corporation Finance*, Testimony of Mr. Flint, p. 39.

²¹ *Ibid.*, pp. 21, 38, 39. See, also, Dewing's *Corporate Promotions and Reorganizations*, Chapter XX.

The success of large combinations in realizing largely increased earnings has likewise failed to come up to expectations. Individual combinations here and there did earn impressive dividends. The oil, sugar, tobacco and steel consolidations were famous for their large earnings. The sensational earnings of certain combinations received much publicity, and so gave rise to the popular belief that practically all combinations were making excessive gains. The true facts of the case are carefully summarized by H. R. Seager: "Of the 183 industrial combinations investigated by the Census Bureau in 1900, but 121 had paid dividends. . . . One-third of the total number paid no dividends at all and another one-third paid no dividends to common stockholders. Nor has this showing been greatly improved in the years that have elapsed since 1900. An intensive study of the thirty largest trusts which were organized prior to January 1, 1904, shows that, while eight have been phenomenally successful, and seven moderately successful, ten have proved unsuccessful and five have been disastrous failures."²² The combination movement thus fell far short of its hopes and promises. The anticipated economies too often proved to be illusory, and the advantages of large scale production which had loomed so attractively in the arguments of promoters proved to be offset time and again by even greater handicaps and disadvantages arising from unwieldiness and overgrowth. The history of the combination movement, in all its ups and downs, teaches preëminently one economic lesson of the greatest significance, namely, that the economies and advantages of large scale business tend to disappear after the business unit gets beyond a certain size. A point is reached beyond which the economies and advantages are offset by wastes, inefficiencies and disadvantages of the severest sort. The size of maximum advantage and economy varies from industry to industry and from decade to decade, owing to changes in the state of the industrial arts and sciences.

In a broad way, those industries will accommodate the largest size of business unit which can most thoroughly substitute mechanical processes for the workmanship of human beings. Industries whose processes can be standardized, in which automatic and semi-automatic machinery can be utilized, in which mechanical conveying and transporting and hoisting can be taken advantage of, and in which the human element can be reduced to a subordinate importance, realize most fully the economies of large scale production. As the mechanical technology advances in a branch of industry, and methods of standardization are improved, the way is paved for large units of business organization. To the extent that labor is involved in such highly developed mechanical processes, its efficiency is guaranteed by the necessity for keeping up with the machine. In the meat packing plants, for example, the animal is conveyed by machinery past the worker, and it is necessary for him to perform a single specialized operation completely, while the animal is traveling in front of him. The speed of the carrying machinery thus

²² *Principles of Economics*, 1917, pp. 455-456. See, also, A. S. Dewing, *Quarterly Journal of Economics*, Volume 36, pp. 84-102.

regulates the speed of the worker. The same is true in standardized automobile manufacture, and in any number of other mechanized industries. In lines of production where definite regulation of the worker's speed by the mechanical processes is not so fully possible, his labor is still a minor part of production cost even if he is inefficient.

However, the possibility of large scale economies is sharply reduced where skill, workmanship, personal interest, and individual devotion to duty are major factors of the business process. The large company loses the human touch with the workers. Workers come to think of the executive officials often as remote and mysterious powers, interested solely in grinding out maximum profits, and the psychological reaction is sulkiness, indifference to work, disloyalty to the company, and personal inefficiency. Combinations in industry have found it exceedingly difficult to avoid diminishing labor efficiency with increasing size. The human factor has stubbornly resisted efforts at standardization, and the failure of the original promoters of the great combinations to take into account this basic psychological element explains in large measure the repeated disappointments in the efficiency of these combinations. Primarily for the reason that human factors play a dominant part in their processes of production, the cotton manufacturing industry and the men's and women's clothing industry have not been brought under the régime of large scale production.

It is also true that in those branches of industry where standardized mechanical processes can be drawn upon, the independent corporation may secure substantially as great efficiency as the enormous combination. In such industries there is no insurmountable difficulty to the attainment of efficiency under the large organization, but, on the other hand, the gigantic organization is not necessary for the attainment of maximum efficiency. Reasonably strong independent companies can install the mechanical equipment as well as the huge companies, and can realize in good measure similar economies. Gigantic combination in such lines of industry is not an essential condition of the greatest efficiency.

The greatest single obstacle in the way of large scale enterprise is a psychological one. For one thing, it is next to impossible to find leaders with the instinctive and intellectual equipment requisite to the direction of the large undertakings. Business organizations suffer from a dearth of the very best managerial ability. The salaries offered range from \$15,000 to more than \$100,000 a year, and the positions carry such power and prestige that they are coveted intensely by the leading men of the country. But there is a limit to the tasks which even the best brains can master, and there is a very narrow limit, very commonly lamented by boards of directors in search of executives, to the supply of the best brains.²³ A billion dollar corporation entails problems of administration and control which only the rarest executives can solve effectively.

²³ See A. Marshall's *Industry and Trade*, pp. 360-364; Stevens's *Industrial Combinations and Trusts*, pp. 574-575.

The large combinations embrace a dozen, or a score, or a hundred or more separate plants, scattered across the country. Each subsidiary plant must have executive officials of high ability, and it is no small task to find a sufficient number of this sort and for the president of the combination, who is seldom in personal contact with them, to inspire them with his ideals for the business. The various subordinates have to be infused with the spirit of the head of the combination, understand the application of the broad policies and basic ideas which he desires to have worked out in the several plants, made to feel a keen sense of responsibility and loyalty to the combination. When the managers of the various plants do not have their own money tied up in the property, there is a double difficulty in leading them to devote their best energy and ability to their position. They do not plunge into the task with all their strength as they might if the business were their own. Especially are they apt to assign the burdensome, tedious, aggravating parts of the position to others, and to neglect the drudgeries which might not seem so onerous if the plant actually belonged to the manager, and all the pride of personal fortune were at stake. In cases of independent corporations, of the small or moderate sized variety, no amount of plugging, no amount of indefatigable, painstaking effort is too great for the taste of the men whose all is at stake in success or failure. The modern corporation president must be able to create morale among his subordinate executives, and in the largest business organizations, this is a most difficult task. Big business is largely a question of the best motives of the biggest men in the country. And the problem of bringing forth the best psychological powers of executives, yet not overstraining the human equipment; of securing maximum efficiency from the best minds, yet not subjecting them to a business unit so great in its scope as to baffle their judgment and thwart their personality, is one which largely limits the size to which modern business enterprises can successfully grow.

The psychological difficulty extends down the line from the topmost executive to the common laborer. Foremen are men subject to strong bonds of habit and tradition, and all attempts made by superiors to better their contact with laborers come up against the recalcitrance and fixity of the foreman's psychology. In the mind and experience of the laborer, the foreman represents the company, and is the symbol of what the company stands for. In most companies, workers are at the mercy of foremen, bossed by them, paid by them, chosen by them, fired by them, promoted by them, and in the eyes of workers, modern industrial autocracy very widely means simply the petty tyranny and capricious domination of foremen.²⁴ The personal touch between the owner and worker in the small plant is gone, and the large corporation is a great impersonality, interpreted to the workers through the medium of petty bosses and foremen.

²⁴ S. Webb, *The Works Manager Today*, p. 27. See, also, Whiting Williams, *What's On the Worker's Mind?*, Chapters 11-14.

The imperfect human relations of large corporations have been prominent factors in the disappointments and failures of large businesses in the past. It is most significant, however, that in recent years, and particularly as an outgrowth of the World War, pioneer leaders of great corporations have demonstrated the practicability of a new science of human relations. Many leading corporations have created Departments of Industrial Relations, the basic purpose of which is to organize the human factor in industry. Practical experience has already resulted in a body of scientific principles of labor management applicable in the effective treatment of the human industrial problem. This body of principles calls for such policies as the inauguration of employees' representation in the form of works councils or shop committees, the adjustment of questions of hours and wages in frank consultation with workers, the systematic stimulation of right incentives and motives in the worker, the improvement of lighting, heating, ventilating and other working conditions, the development of confidence in company policy by suggestion systems, collective bargaining, medical care, vacations, and insurance aid. This new science of human administration goes far toward overcoming the original handicaps of large business organizations in dealing with the labor factor. Once labor has been brought under adequate control, psychologically speaking, the economies of large scale production need not be confined primarily to industries operating under mechanical and standardized processes, but will be possible to an increasing degree for industries in which human skill and personal interest are major factors. The very recent developments in the science of industrial relations have a direct bearing, therefore, upon the most efficient size of business units, and upon the possible economies of large consolidations.

The trials and difficulties of large business lead, moreover, to an analysis of some of their fundamental relations to banking and financial interests. The intimate relations established between new corporation promotions and the investment bankers and syndicate of underwriters which float the corporation securities; the banking connections of boards of directors which are of aid in the maintenance of adequate credit for working capital purposes; the ties formed between railroads and other corporations and their bankers during periods of receivership and reorganization; and the confinement of the attention of boards of directors very largely to questions of finance, all serve to subordinate nearly all other corporation problems to the uppermost problem of corporation finance. The history of the financial relations of the great American trusts certainly bears out the broad conclusion of the English economist, Alfred Marshall, that "a great part of the railways and the chief manufacturing and mining businesses of America are largely under the control, for good and evil, of a comparatively small number of powerful financiers."²⁵

This control is widely exercised by means of interlocking directorates. All the members of a bank's board of directors, and its major executive

²⁵ *Industry and Trade*, p. 540.

officials may be members of the boards of anywhere from half a dozen to half a hundred corporations. The Clayton Act of 1914 prohibits interlocking directors between corporations which, by the nature of their business, are actual or potential competitors, where interlocking directorates might tend to restrain competition unduly. The act is not a sweeping prohibition of all interlocking directorates, but only such as would involve the building of monopoly advantages or the unreasonable restraint of competition. Interlocking directorates are still permissible where they do not violate this prohibition, and hence they exist at present on a broad scale, and are important financial connecting links between corporations and financial houses. There is nothing in this relationship which indicates a "money trust," or a conspiracy of bankers to dominate the business of the country, a charge which is often loosely made. The true significance of the relationship is simply that "the structure of modern capitalism tends to throw an ever-increasing power into the hands of the men who operate the monetary machinery of industrial communities, the financial class."²⁶

The financial needs of the large consolidation for working capital are largely accommodated by commercial borrowing from banks; and the greatest vigilance is necessary on the part of the corporation's overseers to have ample funds available to pay off such loans when due, or to have the state of the business strong enough to make bankers feel safe in extending loans instead of exacting prompt payment. In times of business depression or crisis, with the assets of a corporation depreciating in value, and general anxiety throughout the banking community, the corporation must be able to meet promptly its commercial credit obligations in case the banks feel it necessary to liquidate the obligations. Failure to meet the obligations when demanded means a state of insolvency. The constructive aid of affiliated financiers is of life-saving value at such critical periods, and in numberless instances, a lenient and coöperative attitude on the part of the financial institutions is the only factor which makes it possible for the large corporation to "round the corner" of the critical period. Moreover, the borrowings of the corporation for purposes of fixed capital, such as buildings, or machinery, entail certain interest charges which have to be met regularly. Failure to meet the interest charges means a state of insolvency. The ultimate source of payments of all credit obligations is the earnings of the corporation. If these earnings are not large enough to meet the payments when due, no matter whose the fault, the corporation is ready for bankruptcy. But it happens with any number of corporations and their financial backers that during a period of prosperity, with profits running high and business booming, the optimism of the times grips the imagination of the corporate overseers, and impels them to over-expansion, over-capitalization, over-borrowing. Time and again, bankers and corporation directors prove victims of their own psychology, and in the great tide of money making and expanding and building of a period of

²⁶ J. A. Hobson, *The Evolution of Modern Capitalism*, pp. 235-257.

prosperity, they forget the law of business cycles, forget that a little later on will come the return swing of the pendulum, with depression, low earnings or actual losses, hard times, tight money, and general liquidation. When the turn does come, the financial overseers of the corporation try often to keep up appearances by paying dividends whether they have been earned or not, and this effort is the paramount immediate cause of the bulk of industrial bankruptcies.²⁷

The financial interests unfailingly endeavor to keep the price of securities on the investment market at desired levels, and of course face the problem of maintaining ample value in the stocks and bonds serving as collateral security for much of the corporation's commercial credit. Even at best, with all financial interests unselfish, and devoting intelligent attention to the welfare of the consolidation, the financial status of the corporation must be painstakingly safeguarded. Under less favorable motives, with occasional recklessness or selfishness on the part of dominant financial interests, or with excessive greed for immediate power or profit, the financial status of the business combination has in numerous instances been deplorable. In certain cases, large scale fraud in the manipulation of securities, and speculation where conservatism was sorely needed have ruined corporations, and brought untold loss to innocent and helpless investors. New England people will not soon forget the manipulations, which the Interstate Commerce Commission so vigorously condemned, in the affairs of the New York, New Haven and Hartford Railroad.²⁸

All of these financial complications continually present grave problems for the large combinations to solve. Their relations with the financial institutions must in the very nature of the case be fairly intimate. The large consolidations in almost every line of industry are constantly drawn into close contact with the investment and commercial bankers. The influence of the financiers upon the directorates of modern large corporations is a natural outcome of the structure of corporate institutions.²⁹

From all the foregoing facts and considerations, it is obvious that many of the large consolidations have by no means had easy sledding. Disappointments from unrealized efficiencies and economies have been frequent, and illusions about rich earnings have been repeatedly exploded. The consolidation movement had its greatest innings at a period when the American people were swept off their feet by a temporary awe of and credulous trust in bigness. The grandeur of size caught the imagination of bankers, of business men, and of the people. It was accepted without proof that if a business could but become big enough, its economies would be almost unlimited and its earnings would be well-nigh fabulous. The psychological bubble was pricked by the hardships of costly experience and the disappointments of corporation history.

²⁷ A. Dewing, *Corporate Promotions and Reorganizations*, pp. 546-557.

²⁸ See, also, W. Z. Ripley's *Trust Pools and Corporations*, pp. 23-30.

²⁹ H. G. Moulton, *Money and Banking*, Chapter XI.

Through all the period of consolidation and concentration, those trusts which had to rely for their success mainly upon the economies and efficiencies of large scale operation have either met with indifferent success or have failed outright. The trusts with glowing records of high dividends and huge profits are usually those which attained a substantial power of monopoly over prices, and which held a position from which they could take unfair advantage of the surviving small competitors. Either this, or they had for a time the leadership of an executive of the rarest ability, one of the towering captains of industry of the last generation in America who had the genius to make a go during their lifetimes of an otherwise scarcely profitable consolidation.³⁰

The part which management plays in the whole economic organization is obviously a leading one. Management is today divorced from ownership. Owners are holders of corporate securities, and need have no direct interest in the properties nor give any personal attention to their care and government. Managers work for a salary primarily, although in places they also are interested as part owners in the business. Directors of banks and corporations concern themselves mainly with financial matters, leaving questions of labor, production and technique to the presidents, vice-presidents and engineers of the plants. Profits go, not to the men who manage the business, but mainly to those who own the business. The psychology of management shows that bankers and corporation executives are men usually of great intellectual equipment, but that a large proportion of them, or all of them, will be found subject to the sway of customs, traditions, and habits. Optimism gets the better of them during periods of prosperity, and miscalculation leads their businesses into precarious positions repeatedly. Inertia and prejudice keep thousands of them from taking up with the latest improvements in machinery and technology of production, and their frequent inability or unwillingness to master the technique of the modern science of management causes appalling wastes throughout the economic system. On the other hand, modern corporate management has increased the productivity of the individual worker by making possible the large scale use of machinery. Modern management directs the economic energies of society with a degree of efficiency which surpasses any other form of economic government that men have yet contrived.

The shortcomings of management indicate primarily the lines of evolution for the future. The recent determination of management to organize human relations in industry is an admirable example of the ability of management to adapt itself to the challenging difficulties of a particular period. The extremes and excesses of managerial policy appear to be coming under control. The tests of business success are now more than ever before seen in the growing attitude that exploitation of labor as a means of reaping profits must be a thing of the past; that abuse of investors' money deserves criminal prosecution; and that mod-

³⁰ See A. Dewing's *Corporate Promotions and Reorganizations*, pp. 563-568. Also W. S. Stevens's *Industrial Combinations and Trusts*, pp. 574-580.

eration in the use of monopoly advantages, and stability rather than exorbitance of prices, is desirable.

In days gone by, capital was a term which covered both management and ownership. Recent economic evolution has differentiated managerial functions as a distinct and separate factor. The prime requisite of successful management is a threefold responsibility: to the public, courteous service, standard quality of goods, reasonable prices; to the owners, safe-keeping of investments and moderate profits; to the laborers, living wages, democratic treatment, healthful working conditions, a creative interest in work. The day when the responsibility of business was selfishly looked upon as almost an exclusive responsibility to owners,—a responsibility to harvest the maximum profits, without fear or favor,—is beginning to pass. The modern manager of the best type recognizes a threefold responsibility for the positive benefit of laborers, owners, and consumers. The test of successful management is the discharge of this balanced threefold responsibility.

The characteristics of the present economic period reflect again and again the problem of the size of the business organization. The question of big business or little business is one calling for incessant attention. It may safely be declared that the question has not yet been fully decided. And yet, out of the tendencies and developments of the last decade, certain fundamental lessons stand out very clearly. The large business unit has come to stay. A return to the old days of *laissez-faire* competition between little business establishments is unthinkable. A new competition has come into activity,—a competition between bigger units. In the branches of industry where consolidation has gone far, the biggest combinations operate in the same field with a dozen, or a score, or a hundred independents. But the independents themselves are larger, and the competition which now exists is none the less competition because it prevails between larger business units.

For a time, the public and the courts seemed inclined to destroy big business merely because of its size. That inclination is on the wane, and in its place has come the more matured inclination to define the new rules of the game in such a fashion as to give businesses both large and small a chance for a trial of strength on issues of efficiency and economy. The Supreme Court has declared emphatically that under the Sherman Anti-Trust Law of 1890, it will not condemn business merely because it has grown large. If it is not guilty of unfair and destructive competition, if it is not holding its position because of unreasonable restraint of trade or undue monopoly power, if it can remain large or grow larger while still playing the game under the new rules; if it can carry on its large scale enterprise with efficiency under those rules, it may continue in existence, no matter what its size. The size of maximum efficiency will vary with each branch of economic activity, and trial and experiment alone will decide in each case where the point will lie. Where modern business management is recalcitrant, and dodges persistently the rules of fair dealing with competitors, with labor, with owners, with

the public, the instruments of public control are not wanting. Regulating commissions, price fixing commissions, public service commissions, publicity and investigating commissions, are available already, and others can be easily created by a public acquainted with the means of control set up to meet the needs of the country during the period of the World War. The blind fear of monopoly and the blind trust in competition are both giving way to a discovery that there is something useful to the economic community in that degree of monopoly which accompanies large scale business or which takes the form of open coöperation between concerns in a given line of trade; and that there is something dangerous in the form of unbridled competition which is ruinous and deadly for the competitors.

More and more, the modern type of business government makes room for coöperation in economic activity. Business can still compete, yet in many matters serve the community and itself better by taking counsel and by coöperation which will bear the light of publicity. Destructive competition gives way to constructive competition; and monopoly in restraint of trade gives way to coöperation in the aid of trade. The new standards of competition and the new standards of coöperation are still in the process of development and evolution, but their features are now distinct enough to make clear that a change in the units and types of business management has been taking place in recent years. The reconstruction of business management along the lines of responsibility to consumers, owners and workers is a cardinal feature of the economic developments of the last generation.

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PART V

MONEY, CREDIT, AND BANKING

CHAPTER XXV

MONEY AND CREDIT

Money is anything which is generally acceptable in a community in exchange for all other goods and services. The one distinguishing characteristic of money is its universal exchangeability. Whatever has this characteristic is money, no matter whether it is made out of pure gold or merely out of a strip of yellow and green paper. If an article passes freely from hand to hand as a medium of exchange, if it is accepted readily and as a matter of course in payment of all debts and obligations, then that article is money, no matter what its color, shape, size, or composition. So long as the article is a means of payment that customarily is transferable without question, and between complete strangers as well as between intimate friends has the power to buy goods under any and all circumstances of ordinary occurrence, the article has the money characteristic. A paper mark or ruble worth the merest fraction of a cent is money, and a gold dollar or a silver rupee is money. It may be good money, it may be bad money, it may be disastrous money, but it is money none the less.

Four main forms of modern money may be noted. (1) The precious metals commonly used as modern money are silver and gold. Such metallic money is often referred to as specie. Some of it is in the form of coin, but most of it is not. It is chiefly bullion, and serves its money purpose by acting as a reserve for the various forms of paper money or bank credit. A relatively small proportion of our total gold money reserves is coined, and a still smaller proportion is in actual circulation. (2) Government paper money is issued in most countries, and is a promise by the Government to pay specie on demand. In the United States, such money is illustrated by United States Notes or the so-called "Greenbacks," Treasury Notes of 1890, or silver certificates. Since these forms of paper money are Government promises to pay specie money on demand, it is of the utmost importance that this promise be adhered to. If redemption or convertibility is not maintained, the paper certificates may still circulate as money, but usually will do so at a depreciated purchasing power. Depreciated paper money is none the less money, no matter how much the depreciation may be. (3) Banks issue paper

notes, in the form of their promises to pay specie money on demand. A bank's promise to pay circulates in ordinary times as freely as a Government's promise. In case of panic, any kind of promise to pay is likely to lose the public confidence. If it does, there occurs a run on the banks and on the Treasury in the effort to get specie. At such a time, the general acceptability of the paper promises disappears and for the time being, the money characteristic of the paper disappears. That situation is chiefly a thing of the past in the United States, owing to progress in banking regulation and control. Under all normal circumstances, bank notes meet the test of money. (4) Fiat money is any money whose supply is regulated artificially by government decree. In some cases, fiat money may be simply a piece of paper stating, "This is so much money." It is then simply a printed certificate, without any pretense at having a backing in any commodity such as gold or silver. More often, as a matter of historical occurrence, fiat money has been in the form of a promise to pay money, which could not be made good. It has been a promise in name but not in fact. Inconvertible promises to pay are money, and even though the experience of history has not found them satisfactory forms of money, they are money nevertheless. If Government notes or bank notes become inconvertible, they are then to be considered fiat money until such time as convertibility may be resumed.

Having defined what money is, we need further to clarify our notion of the subject by observing what money is not. It is not personal checks, promissory notes, drafts, bills of exchange, trade or bankers' acceptances, book credits, or bank deposits subject to check. The reason why these are not considered as money is the fact that they have only *limited acceptability* in exchange. A check will be accepted only by those people who have reason to believe that the drawer of the check is good for the amount. These credit instruments have circulation only within those limited circles where there is some personal knowledge of the drawers of the instruments. They are a substitute for money within those limited circles, but lacking universal acceptability they lack the distinguishing characteristic of money itself.

Although for purposes of economic analysis this technical distinction between money and credit is essential, nevertheless we must recognize that in common business parlance money is used loosely and broadly to include all kinds of credit. When business refers to the "money market," and explains that "money is easy" or "money is tight," what is really meant is that credit is "easy" or "tight" as the case may be. Nine-tenths, roughly speaking, of all trade is carried on with credit, and without the direct intervention of money itself. But in the financial columns of the newspapers and in the reports of banks, "money" is used often to refer to all forms of borrowing. According to this vocabulary, money includes any kind of borrowed purchasing power. There is no objection to this use of the term, even from the standpoint of economics, provided the distinction is clearly made between *universal acceptability* of some kinds of purchasing power and *limited acceptability*

of others. Business men often make this distinction by referring to specie money and to Government and bank notes as "currency." These forms of payment have universal acceptability. We have no quarrel with business usage, but for purposes of economic analysis believe it is clearer and more useful to limit the use of the word money to media of exchange of universal acceptability. When we have occasion to refer to all forms of media of exchange, we can best use the combined phrase, "money and credit." Money, technically speaking, is that which has universal acceptability; credit is that which has limited acceptability. The two combined give the total medium of exchange.

Evolution of the Acceptability of Money.—General acceptability is a product of growth and evolution. Man in the stone ages had no medium of exchange. His trade was barter. Money was a gradual invention, aimed at overcoming the difficulties of barter. The first articles that were discovered as usable for medium of exchange purposes were commodities of beauty or of physical necessity. Shells were an early form of money. They were used as ornaments because of their beauty, and they were used as money because their beauty gave them general acceptability as a means of payment. Salt and skins were at times used as money. Their necessity for purposes of food or clothing created for them general acceptability as a means of payment. Ridgeway has shown that for some thousands of years, the money unit of chief importance in the whole Mediterranean region was the ox. Even after gold came into active circulation, the gold unit was simply that weight of gold which was considered to have a value equal to one ox. Before gold and silver came into common use as money, other metals, as iron and copper, had been used. In the American colonies, many different articles served the purpose of money. Wampum in trade with the Indians, rice in South Carolina, tobacco in Virginia, beaver skins and corn in Massachusetts and New York, are examples of the colonial currency. When gold came into common use as money in the United States, the unit of measurement was at first a pinch of gold dust, and later a slug or nugget of gold. Gold coin of standard weight and fineness was the result of government authorization, and today the bulk of the gold money supply is in the form of bullion reserves which are backing for paper money and bank credit.

In the leading industrial countries, gold has come to be the preferred form of specie money. The reason is that gold combines in the best proportion the various qualities required of a good money. But at the same time that gold is the best money, it serves its money purpose indirectly. Gold itself is in actual circulation to only a trivial amount. It is backing for silver, nickel, and copper coin; for paper money; and for bank credit. Gold for the most part supports the active circulation of these forms of medium of exchange, but is not itself in active circulation.

The Qualities of a Good Money.—The requisite qualities of a good money may be listed as follows:

(1) *Utility.* A money commodity has value for its own inherent

qualities. Gold has the quality of beauty, which makes the metal universally desirable for ornament. It also has qualities which make it useful in the industrial arts.

(2) *Portability*. A money commodity should be easy to handle and to carry from place to place. In this respect, gold is much superior to iron, oxen, and other commodities which preceded it. In proportion to its value in exchange, an ounce of gold is lighter than almost any other metal. Gold has great value in small bulk. A dollar in gold coin is so small that it is highly inconvenient to handle, and gold coin of smaller dimensions would have to be as thin as tissue paper. But for larger transactions, gold is too heavy for convenience. To settle a debt of \$10,000, a man would be obliged to lug a sack of gold weighing about thirty pounds. Paper money or checks will settle the same debt with perfect ease.

(3) *Indestructibility*. A money commodity must be durable, and beyond the power of moth or rust to corrupt. In active circulation, a gold coin would not wear out until several thousand years of service had passed. In the form of bullion reserves, the deterioration of gold is practically negligible. Paper money is highly destructible, but is also replaceable at small cost. This *replaceability of paper and indestructibility of its gold backing* has proved to be an effective money combination.

(4) *Uniformity*. A money commodity should be of the same quality in all its parts, so that equal weights will always have a uniform value. Gold is reducible to a standard fineness, and then possesses ideal uniformity. Paper money is printed by a standard design and is convertible into a standard unit of gold.

(5) *Divisibility*. A money commodity should be capable of being cut up into small portions without thereby destroying its value. To cut up beaver skins or oxen would be to destroy their value for trade, or for the other purposes for which they are normally desired. Gold may be divided into portions large or small, without impairing in the least the value of the metal. In actual practice, the bulk of the gold supply is not divided into small bits for coins, but is divided into bars of bullion, of standard fineness. Alloys of other metals meet the purpose of small coins because of their more convenient size. Divisibility is attained in paper money without change of size, but merely by change of the amount stamped upon the face of the note.

(6) *Cognizability*. A money commodity should be difficult to counterfeit, deface, or mutilate, and easy to recognize by any one at its exact value. Gold and subsidiary coin meet this test by having the edges of the coin milled and the faces of the coin stamped. Any doubt as to the fineness of gold can be quickly resolved by any jeweler's test. Paper money is made with a distinct texture and pattern, and imitations are usually detected quickly as soon as the bills pass through skilled fingers. Even with this precaution, however, the alert effort of the Secret Service is necessary in order to suppress counterfeiting.

(7) *Stability of Supply*. A money commodity should not be subject

to violent fluctuations in supply, because these in turn cause violent fluctuations of value or purchasing power. Gold mining cannot turn out a new supply at the most that will alter the total supply of gold in any one year by more than about three to five per cent. Over a period of decades, however, gold mining causes fluctuations of supply which produce wide changes in the value of the dollar. In this respect, gold is an imperfect money commodity, but comparatively speaking, it is less imperfect than any other metal that might be used. The supply of paper money is determined by the will of the government to run its printing presses and by the determination of the banks to expand their note issues. The temptation, as shown by history, is to over-issue, and over-issue in turn produces inflation.

(8) *Elasticity*. A money commodity should expand and contract in volume in proportion to the expansion and contraction of the volume of business. Stability and elasticity are not contradictory money qualities. They are closely inter-related. The money supply should be elastic enough to change in order to meet the changing needs of business, but should not be so unstable as to undergo violent fluctuations in value. Elasticity is best secured by regulation of note issue by government and banks with regard to the need of business. The visible sign that elasticity and stability are being attained is that the price level remains fairly stable and constant.

Reasons for the General Acceptability of Paper Money.—Convertible paper money has general acceptability for three main reasons. First, and most important, such paper money is a promise to pay a universally acceptable commodity, namely, specie. Confidence in the power to redeem these paper notes on demand in gold underlies everybody's willingness to accept the paper notes in payment for goods and services. But this confidence in the gold backing of paper money is not the only factor in securing its general circulation. A second factor is confidence that the paper money will itself have general purchasing power over goods and services. This confidence that the paper money will command goods and services in exchange is the outgrowth of habit and custom. In passing paper money freely from hand to hand, people do not reason back to the fact that they can convert the paper into gold, but merely act upon the assumption confirmed by custom that the paper money will itself buy whatever goods and services they want. *Command over goods plus convertibility into gold leads to the general acceptability of paper money.* There is a third factor, which can be described as confidence in the authority issuing the paper money. Confidence in the government and confidence in the banks is essential for the general acceptability of paper money. This confidence is chiefly a product of the general state of public opinion and of the stability of government and business. It is reinforced by the specific edict of government that certain forms of paper money shall be *legal tender*, that is, shall be accepted by debtors in payment of debts. But the legal tender edict cannot create confidence, it can merely reinforce confidence which

already exists. In the United States non-legal tender forms of paper are just as acceptable in all ordinary events as legal tender forms. *Confidence in government and banks plus confidence in the power to command goods plus confidence in the convertibility of paper gives the three-fold basis for the general acceptability of convertible paper money.*

The acceptability of inconvertible paper rests upon two of these supports, namely, confidence in command over goods and services and confidence in government and the banking system. The Greenbacks during and immediately following the Civil War were inconvertible paper. They possessed general acceptability, though at a depreciated value, and were the active currency of the time. Although inconvertible for a number of years, there was public confidence that in the course of time they would be made convertible. There was confidence in ultimate convertibility. However, it is possible for pure fiat money to circulate when there is no promise of even ultimate convertibility. It is *possible*, but the experience of the world indicates that it is *unwise* until we know more perfectly how to regulate the issue of such paper and how to control its value. Money can be made to circulate without gold backing and without convertibility or the hope of convertibility, but the effect of its circulation has always tended to be violent fluctuations in value, excessive inflation, and ruinous uncertainty about the business future.

Coinage.—A precious metal used as the money standard is given free coinage. The word “free” in this case does not mean *without cost* to those who bring the metal to be coined but means *without limit as to the quantity* that will be accepted for coinage. If coinage is carried on without any charge for the minting process, it is said to be *gratuitous* coinage. If, however, a person brings to the government gold which is not of standard fineness, he must pay the expense of the alloy and of the refining process to make the metal nine-tenths fine. This charge is known as *brassage*. In the United States, coinage of gold is both free and gratuitous, but getting the gold ready for coinage is subject to the brassage charge. If the holder of bullion takes to the mint gold of standard fineness, he is entitled to receive without charge the same weight of gold in the form of coin. In many countries, coinage is made a source of government revenue by imposing what is known as a *seignorage* charge. The revenue is collected by retaining in the hands of the government a certain fraction of the bullion presented for coinage. The coins returned to the person who presented the bullion contain less specie than he turned over to the government. The difference represents revenue to the government, just as any form of taxation. Seignorage is a tax. Seignorage is not applied in the United States to gold coins, but is applied to the subsidiary coins of other metals. Silver, nickel and copper coins contain a quantity of specie which is less in value than the face value of the coin in circulation. As a means of keeping the specie value less than the currency value, such coins have to be limited in quantity. In modern countries, the major portion of gold bullion is not coined at all, but is held in bank reserves and Treasury vaults as

gold bullion. The holder of bullion sells the metal outright to the government and receives in return the proper amount of certificates or notes redeemable in gold.

In the United States, all coins other than gold, and in denominations less than \$1, are *subsidiary*. Their metal content is worth less as specie than as currency. The quantity permitted in circulation is limited so as to prevent their depreciation in value. They are legal tender in limited amounts. And directly or indirectly, they are redeemable in gold. Consequently they have a value as money on a par with gold coin itself. The subsidiary coins of the United States are the silver half-dollar, quarter-dollar and dime, the nickel and the cent. The silver dollar is not subsidiary coin, but resembles it in every respect except that the silver dollar is legal tender in unlimited amounts. Subsidiary silver coin is legal tender for amounts not exceeding \$10 in one payment. Subsidiary nickels and cents are legal tender only for twenty-five cents in one payment.

Token money is a term often loosely applied to all forms of subsidiary money. It is used, however, in the more strict monetary sense, to apply only to those coins made from the baser metals, as nickel, copper, and bronze. In the United States, token money in this strict sense includes the nickel and the cent.

Kinds of Money in the United States.—The table on page 500 shows the stock of money in the United States, the portion of this stock in the hands of the banks and the Treasury, the portion in active circulation, and the per capita amount of money in circulation on March 1, 1924.

In 1914, more than 90 per cent of the stock of money was in circulation, whereas in 1924 only about 50 per cent of the stock was in circulation. The great decrease in proportion of circulation to stock of money was due chiefly to the heavy imports of gold. The inflow of gold expanded reserves much more than active circulation. The Federal Reserve banks tried to keep the circulation within restraint in order to avoid further inflation of the dollar. Under this policy, although the total stock of money more than doubled, the amount in circulation per capita increased only from \$34 to \$42. All kinds of money in the total stock are kept on a parity of value with gold because of the fact that they are directly or indirectly exchangeable for gold coin or bullion at their face value.

The table indicates seven different kinds of paper money in circulation at the date specified:

(1) Gold certificates represent less than 15 per cent of the per capita circulation. They are backed dollar for dollar by gold coin or bullion held in the United States Treasury. They are, in effect, warehouse receipts for gold. They are used for relatively large payments, being issued in denominations ranging from \$10 to \$10,000.

(2) Silver certificates represent less than 10 per cent of the per capita circulation. They are backed by an amount of silver which if coined would be equivalent dollar for dollar to the certificates. They

are practically warehouse receipts for silver. The inconvenience of using heavy silver dollar coins leads people to prefer silver certificates instead. They are used for relatively small payments, being issued for the most part in denominations of \$1, \$2, \$5, and \$10.

STOCK OF MONEY AND CIRCULATION OF MONEY IN THE UNITED STATES *
AS OF MARCH 1, 1924

(Source: United States Treasury Department circulation statement)

Kind of Money	Stock of Money ¹	Money Held by the U. S. Treas- ury and the Federal Reserve System ²	Money in Circulation Mar. 1, 1924	
			Amount	Per Capita
Gold coin and bul- lion	\$4,338,127,791 ³	\$3,922,080,365	\$416,047,426	\$3.71
Gold certificates ..	(1,038,426,519) ⁴	405,173,980	633,252,539	5.64
Standard silver dol- lars	500,369,769	444,459,829	55,909,940	.50
Silver certificates .	(406,834,697) ⁴	38,084,355	368,750,342	3.29
Treasury notes of 1890	(1,436,526) ⁴	.....	1,436,526	.01
Subsidiary silver .	277,567,439	26,030,072	251,537,367	2.24
United States notes	346,681,016	44,276,933	302,404,083	2.70
Federal reserve notes	2,547,961,170	517,142,944	2,030,818,226	18.10
Federal reserve bank notes	12,649,170	558,558	12,090,612	.11
National bank notes	774,419,202	38,888,517	735,530,685	6.55
Total	\$8,797,775,557	\$5,436,695,553 ⁵	\$4,807,777,746	\$42.85
Comparative totals				
July 1, 1914 ...	\$3,738,288,871	\$1,843,452,323 ⁵	\$3,402,015,427	\$34.35
Jan. 1, 1879 ...	1,007,084,483	212,420,402 ⁵	816,266,721	16.92

* *Federal Reserve Bulletin*, April, 1924, p. 318.
1 Includes United States paper currency in circulation in foreign countries and the amount held by the Cuban agencies of the Federal Reserve banks.
2 Includes money held by the Cuban agencies of the Federal Reserve banks of Boston and Atlanta.
3 Does not include gold bullion or foreign coin outside of vaults of the Treasury, Federal Reserve banks, and Federal Reserve agents.
4 These amounts are not included in the total since the money held in trust against gold and silver certificates and Treasury notes of 1890 is included under gold coin and bullion and standard silver dollars, respectively.
5 Includes gold held in trust against gold certificates and standard silver dollars held in trust against silver certificates and Treasury notes of 1890, the aggregate of which should be deducted from the sum of money held by the United States Treasury and the Federal Reserve System and money in circulation to arrive at the stock of money in the United States. The amounts of such gold and silver held in trust as of the date of this statement are shown in parentheses in the first column.

(3) Treasury notes of 1890 have almost entirely disappeared from circulation. They were originally issued under the Sherman Act of 1890, and have been gradually retired since 1900 by the substitution of

silver certificates. Of an original issue of \$155,900,000, there remain outstanding less than \$1,500,000.

(4) United States notes, or the Greenbacks as they are commonly known, are a legacy of the Civil War issue of fiat paper money. They were not redeemable in gold from 1862 to 1879, but in the latter year gold redemption was established. They make up only about 6 per cent of the present per capita circulation. The quantity in existence is fixed and inelastic, and in the interests of sound money, it would be advantageous to discard them and substitute Federal Reserve notes. A reserve fund of \$150,000,000 in gold is set aside as a normal backing for the \$346,000,000 of Greenbacks in existence.

(5) The Federal Reserve notes make up nearly one-half of the per capita circulation. They are the largest single form of money in circulation. They may be backed either by gold alone, or by a combined reserve of gold and commercial paper. These notes are the chief form of money which expands and contracts in harmony with the expansion and contraction of the general business of the country.

(6) Federal Reserve Bank notes were intended gradually to displace National Bank notes. This effect has not, however, resulted to any material extent, and the outstanding issue of National Bank notes remains practically the same today as when the Federal Reserve Act was passed. The amount of Federal Reserve Bank notes in circulation is a fraction of 1 per cent of the total per capita circulation. The backing for such notes is a 5 per cent gold redemption fund in the Treasury and a deposit of 100 per cent of the note issue in eligible government bonds.

(7) The National Bank notes have persisted in circulation without substantial decrease in volume, and make up more than 15 per cent of the per capita circulation. Their backing is the same in form as that of the Federal Reserve Bank notes. They are an inelastic form of note issue, and because of their inelasticity, it has been the purpose of the Federal Reserve System gradually and ultimately to retire the bulk of such notes from circulation.

Legal Tender.—Those forms of money are called “legal tender” which all creditors are required to accept as settlement of debts owing to them. Legal tender in the United States includes gold coin, silver dollars, treasury notes of 1890, United States notes and gold certificates. Subsidiary silver coins are legal tender up to ten dollars and token coins are legal tender up to twenty-five cents. Legal tender does not include silver certificates, although the fact that the silver coin back of them is full legal tender makes the certificates themselves equivalent to legal tender. Federal Reserve notes, Federal Reserve bank notes, and National bank notes are not legal tender, but these money forms are receivable by the government for public dues. The legal tender quality of money is often assumed to be the cause of its value. People are prone to believe that money has value because the government is back of it. The government backing helps to maintain *the general acceptability* of

the money in circulation but does not determine *the value* at which it shall be accepted. Its value is determined by the scarcity of the amount of money issue, not by the government backing. This distinction was brought out clearly by the inflation of the World War. Paper marks and francs were legal tender notes, and had government backing, but this did not prevent at all their depreciation when they were issued to excess. Nor did government backing of the Greenbacks in the Civil War period prevent their depreciation in value when they were issued to excess. The lesson of experience is clear that fiat money cannot be made to have a certain value or purchasing power by declaring it legal tender. If the fiat money is over-issued it will depreciate in value, whether it is legal tender or not. What is true of fiat money is equally true of gold money. *The legal tender quality aids the acceptability of money but does not sustain its value.*

The Functions of Money.—The primary function of money is to maintain the continuous maximum production of the kinds of goods consumers want and the continuous flow of those goods into consumers' hands. All other services of money are contributory to this function. The end all and be all of money is to keep the machinery of production going at full capacity and in proper balance. The money function is fundamentally a production function. Unless it sustains the maximum output of the commodities serviceable for human use, it fails to fulfill the duty which rests upon it. When factories are idle, when millions of men are out of work, when production is cut to a fraction of capacity, then money is one of the governing factors which has failed to do its work. It is the work of money to insure the steady making of goods for human use. The function of money is to maintain continuous, maximum, balanced production.

In present-day life, money does not by any means fulfill this function completely. It falls short of the work cut out for it. As stated by Wesley C. Mitchell, "With all its efficiency the money economy has a fundamental defect—it warps the aim of our economic activity. What we want as human beings is to make serviceable goods. What we are compelled to do as citizens of the money economy is to make money. And when for any reason it is not profitable to make goods, we are forced to sacrifice our will as human beings to our will as money makers. That is the heart of the paradox."¹ At present, the profit aim of business is to make as many dollars as possible. Sometimes we can make more dollars by making more goods. Then money is doing its work well. Sometimes we can make more dollars by making fewer goods. Then money is doing its work badly. Money forbids the production of goods beyond the point where they can be sold for a present profit. The money problem is how to minimize this defect in the money system, and how to insure that the making of dollars of profit shall be synonymous with the making of the largest possible quantity of goods for human use. The function of money is to maintain maximum production, and

¹ Wesley C. Mitchell, *Stabilization of Business*, p. 53.

the defect of money in meeting that function is that often the making of more money profits demands the making of fewer goods than human need and want requires.

The other functions of money are here listed as *contributory functions*, since their only significance arises from the fact that they contribute to the productive function of money. These functions are to serve as a medium of exchange, as a measure of values, as a stabilizer of value, as a store of value, and as a standard of deferred payment.

(1) *A Medium of Exchange*. When a medium of exchange was introduced into the system of barter, the result was something much more complex than merely a system of barter plus a medium of exchange. The new medium of exchange not only facilitated the exchange of goods for goods under certain conditions, but under other conditions unbalanced and obstructed the exchange of goods for goods. It is nowadays a commonplace to have warehouses bulging with quantities of goods which cannot be exchanged for money or for goods. Earlier writers often stressed the obsolete notion that "money is in reality nothing more than a medium of exchanging one kind of goods for another kind, and, after all, the fundamental form of exchange is barter. The final outcome is nothing more than the exchange of goods for goods."² The modern money economy is quite different from a mere system of barter in which money serves as a term of comparison. The money economy rests upon the exchange of goods for money. That is the end of the transaction. A new transaction begins when the money is later exchanged for other goods. Between these two separate and complete transactions lies a sea of hazards and uncertainties. After the goods have been exchanged for money, who knows how soon the money will in turn be exchanged for new goods? Where will the second exchange take place? What kinds of goods will be demanded in exchange for the money? The *when*, the *where*, and the *what for* are the great unknowns. And because they are unknown, there occurs an unbalancing of supply and demand. There arises an over-supply of one kind of goods and an under-supply of another kind of goods, maladjustment and miscalculation, obstruction and stagnation of goods. This use of a medium of exchange "is always a means of deferring and sometimes a means of defeating the completion of an exchange of goods for goods."³ The medium of exchange *per se* is no guarantee that production and exchange of goods will continue at a continuous maximum. There is no automatic response of that kind. Only as the medium of exchange itself comes under control and guidance, under analysis and understanding, can it be made to contribute to the maximum production and exchange of goods for goods. The medium of exchange is essential to that end, but it does not guarantee that end. The function of a medium of exchange is not achieved by letting money run a haphazard course guided only by uncharted laws of its own supply and demand, but by ordering and organ-

² H. Bilgram and L. E. Levy, *The Causes of Business Depressions*, p. 38.

³ W. T. Foster and W. Catchings, *Money*, p. 222.

izing money to insure that to the maximum degree possible it stimulates the production and exchange of goods without obstruction, depression, or stagnation. A money *policy* is indispensable.

(2) *A Measure of Values.* Money is a measuring stick of values as they exist at any given time. It is not a guarantee that values will be the same at any two different dates, but at any given date it is a measure of values. By comparing the prices in money of two different articles, we are able to compare the values of the articles. Money is the common measuring rod. The unit is the dollar, which is 23.22 grains of pure gold or 25.8 grains of standard gold nine-tenths fine. This is a unit of weight, but it is used as a unit for measuring value. A weight unit serves as a value unit. The weight of the unit is always the same, but the value of the unit is subject to frequent change. Every change in the purchasing power of the dollar is a change in the value of the dollar unit. Every change in the general price level is an indication of a change in the value of the money unit. But no matter how many times the value or purchasing power of the dollar may change, *at any particular time the dollar is a measuring stick of the then existing values of all goods and services.*

Other sciences have their units of measurement. Calories, meters, inches, pounds, bushels, volts, are measuring units for their respective purposes. Economic science requires likewise a universal unit of measurement. It uses as its universal solvent the pecuniary unit. The language of business is always dollars and cents. Labor works for a money wage, capital invests for a money return, management runs all its book-keeping and accounting in terms of money costs and money gains, the market buys and sells at a money price, finance is the *institution of money and credit*. Whatever cannot be measured in money units or show a relationship to pecuniary factors is extraneous to the science of economics. Every force which plays a part in economic life wears a price tag. This price tag is the index of the economic value of every service, every commodity, every right, every piece of property in relation to all other services, commodities, rights, or pieces of property. In the United States the value of anything and everything is measured by comparison with the standard gold dollar. This standard does the measuring work universally required throughout the price system.

(3) *A Stabilizer of Values.* Money does its work best when the dollar fluctuates in value least. A gold dollar is always worth a dollar, but is not always worth the same amount of food or clothes. An ideal money system requires a dollar of approximately stable value. Violent fluctuations of the purchasing power of the money unit are especially injurious. Although gold has never enjoyed adequate stability of value, nevertheless it has been less unsatisfactory in this respect than any other medium. The visible sign of unstable money value is a fluctuating price level. Hence, in saying that it is the function of money to stabilize values we are really saying that it is the function of money to stabilize the price level. Pure fiat money has been the poorest kind of device

ever tried to accomplish this end. If in the future fiat money should be found susceptible of control and stabilization, that discovery would be a reversal of the experiences of history up to the present time. On the other hand, the use of gold money does not in itself insure stability of price levels. In the United States the price level more than doubled between 1914 and 1920. Gold values were unstable. But every country in Europe that abandoned gold had far more violent fluctuations than did the United States. Comparatively, gold money is the least unstable tried to date. Ideally, gold money falls short of stabilization of value, and leaves much to be desired. But whether the money be gold or silver or paper, if it is to do the work that a money ought to do, it must come as nearly as possible to stabilizing the price level and the value of the money unit of measurement in economic society.

(4) *A Store of Value.* Money serves as a store of value until the holder decides to spend it. So-called pocket money is money used as store of value. Idle deposits in a bank not drawn upon by check are store of value. But every man, if he is money wise, tries to keep these items as small as possible. They represent idle money, money that is not earning anything. The money that a man keeps on hand is used as a store of value, but he cannot make money by keeping it. The only way that he can make money is to get rid of his money, that is, to invest it. When it is invested, he no longer has the money. He has a business or a share of stock. These become his store of value. They are a profitable store of value because they earn an interest or a profit. Hence, it is to every man's advantage to use as little money as possible as direct store of value, and to convert his money into property which will earn returns. Property is a far better store of value than money.

There is a popular fallacy that money is the one commodity of which an individual can never have enough. It is assumed that the more money one has, the richer he is. But it must be remembered that the rich man has acquired his riches by parting with his money as rapidly as possible, and getting in place of it property and business that would earn an increase. His riches are measured in terms of money but actually they are in non-money forms of property. The property and business owned is the real store of value, and only the minimum amount of ready money required to be kept on hand is used as a store of value. Any man has too much money when he has idle and unused funds that could profitably be invested and put to work. A store of value which earns something is better than a store of value which earns nothing. Money is the latter kind of store of value.

(5) *A Standard of Deferred Payments.* Deferred payments are those which involve the use of credit. The bulk of business is done on the basis of the power to obtain goods now by giving a promise to pay at some future time. Wherever goods are sold on time, wherever borrowing is undertaken, wherever debts are created, there deferred payments are arranged. It is important that if a man borrows a certain sum today he shall pay back the same amount of principal on the day of the

loan's maturity. Money furnishes a standard for such deferred payments. The debtor must always pay back the same number of dollars as he borrowed, plus of course the interest charge. Money supplies the function of a standard of deferred payments by insuring that the number of dollars paid back shall always be as great as the number of dollars borrowed.

But in supplying this function, money has one serious defect. The debtor may pay back the same number of dollars, but the purchasing power of these dollars may have changed in the meantime. Any change in the price level will mean a change in the purchasing power of the dollar. Consequently paying back the same number of dollars may not be the same as paying back the same amount of value. Money is not at present a standard of deferred values or deferred purchasing power. It is only a standard of deferred payments in dollars regardless of their changed value or purchasing power. Deferred payments would have a constant value only in case money performed perfectly its function as a stabilizer of the price level. Pending this achievement, money is a standard of *deferred payments of unstable value*.

The Gold Standard.—A law known as the Gold Standard Act was passed on March 14, 1900. It was entitled, "An act to define and fix the standard of value, to maintain the parity of all forms of money issued or coined by the United States." To this end, it is enacted, "That the dollar consisting of twenty-five and eight-tenths grains of gold nine-tenths fine shall be the standard unit of value, and all forms of money issued or coined by the United States shall be maintained at a parity of value with this standard, and it shall be the duty of the Secretary of the Treasury to maintain such parity." This explicit recognition of the single gold standard simply put the stamp of approval on a condition that had existed since 1873. In that year, Congress had passed a law which, while it did not specifically prohibit the free coinage of silver, omitted altogether a mention of silver among the coins which might be made. The resumption of specie redemption of Greenbacks in 1879 meant the establishment of gold as in fact the single monetary standard in the United States. England had adopted the gold standard long before, as early as 1816. In 1914, forty-eight of the nations of the world were on the gold standard, including all of the large industrialized states. The gold standard had become the preferred standard of the world. The World War resulted in the abandonment of the gold standard by nearly all the leading countries except the United States. After the war, one of the leading issues of reconstruction was the restoration of the gold standard among the nations that had abandoned it. Further aspects of that question are discussed in a later chapter dealing with problems of international finance.

The essential characteristics of the gold standard are not always fully embodied in the monetary policies of the countries which profess that standard. With due allowance for such variations, the essential

characteristics of the complete gold standard may be outlined as follows:

(1) The gold standard involves a definition of the weight and fineness of the gold content of the money unit. Thus the gold dollar is defined as 25.8 grains of gold nine-tenths fine, the gold pound sterling as 123.27447 grains of gold eleven-twelfths fine, the gold franc as 4.97806 grains of gold nine-tenths fine.

(2) The gold standard requires that the paper currency and the subsidiary coin of a country shall be convertible at any time into gold at a fixed legal ratio. The United States law is emphatic that all forms of money in the United States shall be maintained at a parity with the gold dollar, and the method by which the parity is maintained is the redemption of all forms of money in gold upon demand. Free and unrestricted convertibility is of the essence of the gold standard. When convertibility goes, the gold standard goes.

(3) The gold standard requires the free coinage of the one metal, gold. The word free as used in this connection does not mean without charge but means without restriction as to the quantity of bullion that any one may have coined. A brassage or seigniorage charge may be made for the coinage process, but the coinage is free in the sense that it is unlimited at the fixed legal rate of weight and fineness.

(4) The gold standard requires that gold money shall be universal legal tender within the country. It is legal settlement of all debts, both public and private.

(5) The gold standard requires a free and unhampered gold market. This means the unrestricted melting down of gold coin into bullion, the uninterrupted flow of gold from money into the arts, the uninterrupted flow of gold from the arts into money, and the unrestricted import and export of gold. Before the war the most important free gold market in the world was London, but owing to the effect of the war upon the gold standard throughout Europe, the United States became for the time the only free and unrestricted gold market in the world.

Other Metal Standards.—In most countries where the complete gold standard has been found difficult of introduction, a modification known as the *gold exchange standard* has been resorted to. In such countries, the actual currency in circulation may be silver coin, but this coin is made ultimately redeemable in the gold money of some foreign country at a fixed legal ratio. The aim of this standard is to give a silver currency a stable exchange value in terms of gold. It is necessary that the free coinage of silver be abolished, and the coinage limited to an amount which will always insure that the value of the silver coin as money will be greater than its value as bullion in the metal markets. Redemption is not directly in gold but in drafts and bills of exchange payable in gold in a foreign country. The Government or Central Bank regulates the interchange of silver and drafts on gold with a view to maintaining the parity of convertibility at all times. The advantage of

the system is that it provides a silver country with the stabilizing influence of a gold standard without the cost of maintaining gold reserves as heavy as those required by the full gold standard, or of providing gold coins for actual circulation. India, the Philippine Islands, and the Dutch East Indies are among the countries which operate on the gold exchange standard. Some European countries reconstructed their post-war finances by adoption of the gold exchange standard, pending the restoration of the full gold standard.

The only silver standard country of importance is China. The six other countries using that standard are relatively minor ones. The greatest difficulty with the modern silver standard is in maintaining stability of value between silver and gold in the foreign exchange markets. Every change in the bullion price of silver in terms of gold causes fluctuations in the exchange markets, and such fluctuations have a disturbing effect upon international trade.

A *bimetallic standard* exists when both gold and silver are legal tender in any amount and both enjoy free and unlimited coinage at a fixed mint ratio. The monetary history of the United States down to the end of the nineteenth century centers largely around the problems of bimetallism. The country had bimetallism until 1873, and did not finally and definitely abandon the belief in bimetallism until after 1900. Many other countries operated under bimetallism until the gold standard supplanted it in the course of the nineteenth century. At the present time no country is on the bimetallic standard. The issue involved in bimetallism has, therefore, chiefly an historical interest. In its time, bimetallism served a valuable purpose, and many and great political battles have been fought around it. The greatest of these was the famous free silver campaign unsuccessfully led by William Jennings Bryan in 1896. But today bimetallism is fundamentally a dead issue. Some people have endeavored to stir up a certain interest in the subject by urging that the countries of Europe return to bimetallism instead of to the gold standard as a solution of their post-war currency problems. However, the proposal has not commanded any substantial support, and bimetallism has become a matter of history.

Probably the uppermost factor in the downfall of bimetallism was the difficulty in making the mint ratio between the two metals correspond with the market ratio. From 1792 to 1834, one ounce of gold at the mint was freely coinable into the same number of dollars as fifteen ounces of silver. The mint ratio was 15 to 1. But one ounce of gold in the bullion markets would buy approximately fifteen and one-half ounces of silver. The market ratio was about $15\frac{1}{2}$ to 1. Gold was undervalued at the mint, because it was worth more as bullion than as money. Any one could with an ounce of gold buy fifteen and one-half ounces of silver. The half ounce would be clear profit because fifteen ounces of silver would coin into just as much money as one ounce of gold. Silver was the cheaper metal, gold the dearer. Silver was bad money, gold was good money. Under this condition gold practically

disappeared from circulation. The bad money drove out the good, the cheaper money drove out the dearer, the metal over-valued at the mint drove out the metal under-valued. This tendency was the expression of a principle associated with the name of Sir Thomas Gresham as early as about 1559. The tendency, familiar to the economist as Gresham's law, may be stated as follows: *When a metal is worth more as bullion than as money, it will disappear from circulation, to be used either in the arts or for export to a foreign country.*

In 1834, Congress changed the mint ratio to 16 to 1. But the market ratio still ranged in the vicinity of 15½ to 1. Hence gold became worth more as money than as bullion. Gold was the cheaper metal, gold was the bad money, gold was the over-valued metal at the mint, and accordingly gold drove silver out of circulation.

From 1862 to 1879, both metals tended to disappear from circulation because of the inconvertible paper currency of the country, the Greenbacks. This was but a further application of Gresham's law, since depreciated paper is always cheap and bad money, and tends to drive good money out of circulation.

In 1873, Congress enacted the law which for all practical purposes established the single gold standard by simply omitting silver from the list of metals entitled to free and unlimited coinage. If silver had not been thus excluded from the standard, it would have tended during the rest of the century to drive gold out of circulation. In 1894 the market ratio stood at approximately 33 to 1. Under such a market ratio, if the mint ratio of 16 to 1 had prevailed, the operation of Gresham's law would have meant the coinage of silver alone.

Bimetallism has gone. The difficulty of keeping mint and market ratios the same caused its downfall. It will, however, always be a matter of speculation and debate whether under ideal conditions bimetalism would not after all be a successful standard. These ideal conditions would be the adjustment of the mint ratio on a sliding scale so that it would always coincide with the changing market ratio, and in addition, the simultaneous adoption of these adjusted standards by all the leading nations of the world. If international uniformity were secured, it is argued that the mint and market ratios would automatically equalize themselves. The political impossibility of international bimetalism at uniform ratios rules out the plan on grounds of impracticability. If the nations could be persuaded to unanimous adoption at uniform ratios, it is not unlikely that bimetalism would succeed.

The gold standard as operated in the United States since 1873, and as operated in many other countries, has often been called the *limping standard*. The so-called limp in the gold standard refers to the fact that silver is still in circulation as full legal tender money but under conditions of restricted coinage. This limp does not constitute any defect in the gold standard, provided only the restriction on the coinage of silver is rigid enough. Since 1873, there have been three important pieces of legislation passed regulating the coinage of silver.

First, the Bland-Allison Act of 1878 provided for purchase by the government each month of from two to four million dollars worth of silver bullion for coinage. The result of the law was to add to the circulation each year about \$30,000,000. During the lifetime of the law, which ended in 1890, \$352,000,000, all told, were added to the currency. A large part of the new currency took the form of silver certificates instead of coin, the silver itself being held in reserve for redemption purposes. The silver under the law was over-valued at the mint, was full legal tender, but was limited in quantity.

Second, the Sherman Act of 1890 ordered the Secretary of the Treasury each month to buy at the current market price 4,500,000 ounces of silver bullion, and to pay for this bullion by the issue of new Treasury notes of legal tender and redeemable in either gold or silver coin at the discretion of the Secretary of the Treasury. The silver certificates of the Bland-Allison Act were legally redeemable only in silver. The silver coin was not redeemable in gold. The Treasury notes of the Sherman Act were redeemable in gold as well as silver. The Secretary of the Treasury, moreover, was instructed to maintain the two metals on a parity with each other. The effect of the law was to force a mass of cheap silver dollars into the currency, whose metal content was worth more as money than as bullion. This cheap money drove gold out of circulation and out of the country, and caused a gold famine in the currency. This mistake had to be rectified by heroic measures, involving bond issues and dependence upon private bankers. During the three years of its operation, the Sherman law had the effect of adding \$218,000,000 to our currency. The Sherman Act was repealed in 1893, and in 1900 a law was passed which provided that the Treasury notes of 1890 should be canceled by substituting silver certificates for them, the certificates being backed by the silver coined from the bullion that was on hand as a result of the Sherman purchases. Since 1900, nearly all the Treasury notes have been retired, and silver certificates have taken their place.

Third, the Pittman Act of 1918 provided for the retirement of silver certificates and the melting of coin into bullion to an amount not in excess of \$350,000,000. The object of this law was to conserve our gold reserves, and to settle our adverse trade balance with countries of the Far East by the export of silver rather than by the export of gold. To take the place of retired silver certificates, Federal Reserve bank notes were to be issued. After the war, it was provided that the government should repurchase silver and reissue the silver certificates, the Federal Reserve bank notes being retired at the same time. Repurchases of silver under this law were completed in June, 1923.

All three of these laws were the outcome of the desire to create an artificial demand for the product of the silver mines. Silver mining interests have believed that they are entitled to protection, just as many other lines of business believe themselves entitled to protection in the form of a tariff. These silver laws were passed to meet the demands of

the silver mining states that the government should aid in maintaining the market for silver. The money system would be improved if silver dollar certificates were restricted much more severely. The silver reserves are a vast silver hoard of idle wealth, secured at heavy cost and earning nothing for the government. Substitution of Federal Reserve notes would be a policy of economy and simplification. The only advantage in the limping gold standard, in other words, is that it has helped the owners of silver mines to get a market for their silver. But our money supply should be regulated with regard to our need for a medium of exchange to do business with, not with regard to appeasing the demand of the silver interests for a good market. As things stand at present, the limping standard is doing us no particular monetary harm. It is simply giving us an extra burden of cost in the form of a hoard of idle silver bullion.

The Paper Standard.—Paper standards have in the past practically always been the product of war or of some similar emergency. Nations have not willingly and deliberately set out to use inconvertible or fiat money. They have been pressed into the use of fiat money by the necessity of creating immediate purchasing power for the government wherewith to carry on war. Governments cannot wait for taxes to be raised, and even if they could wait, they would consider it more expedient to issue paper notes than to tax the people directly for the whole cost of the war. Fiat money usually has its origin in the desire of the government to obtain purchasing power without arousing the popular discontent which would accompany full taxation.

Paper money is usually a promise to pay specie, but the promise is worthless. It will not be redeemed by the government. It nevertheless continues to pass current, partly due to the fiat of the government that it shall be legal tender in payment of debts, partly due to the hope that ultimately redemption will be resumed, and partly to the sheer force of custom and social convention. Regardless of the fact that it has no present backing of gold or silver, it nevertheless continues to perform all the functions of money. The promises to pay are worthless only in the sense that they no longer command gold or silver in exchange for themselves. *They are of genuine worth in the sense that they do command goods and services in exchange for themselves.* Worthless promises though they are, they nevertheless have genuine purchasing power over commodities, and therefore do the work of money just as truly as if they were shining gold itself.

The paper unit of money is nominally derived from the gold unit into which it was once upon a time convertible. *But in reality the paper unit of value is derived from the degree of scarcity which the paper has in the community.* The unit of value is independent of the intrinsic value of any commodity or precious metal used as backing. Inconvertible francs or marks, for instance, have the purchasing power of their units determined by the quantity in circulation. The supply of fiat money is regulated artificially, and depends upon the rate at which the

government decides to run the printing presses. *The method of regulating the scarcity of fiat money is the chief factor which distinguishes it as a standard of value from the gold standard.*

Although paper standards have in the past resulted in inflation and often in chaos, it is nevertheless conceivable that a paper standard could be regulated with a reasonable degree of success. The prerequisite to success would be a rigid restriction of the quantity of issue, with a view to maintaining stability of the price level. A paper standard regulated by the price index would be an interesting experiment. It has never been tried. It might work. It might not. Until such time as economics can formulate with more scientific accuracy the laws of money and prices, most countries will doubtless prefer to adhere to or return to the gold standard.

The Controversy Over Standards.—Until a short time before the World War, the great monetary controversy was between the advocates of the bimetallic standard and the advocates of the gold standard. That controversy had been settled definitely in favor of the gold standard. Nearly every country in the world was either on the gold standard or on the closely allied gold exchange standard. The gold standard was supreme. But the war caused the majority of countries to abandon some or all of the principles of the gold standard. Free convertibility of paper money into gold and free markets for gold were almost everywhere abandoned. The United States was an outstanding example of a country which managed to survive the war with the unimpaired gold standard. Most other countries issued fiat currency, and went onto a paper standard. Consequently the great monetary issue under post-war conditions was whether the gold standard should be restored or a paper standard regulated by index numbers should be permanently adopted. All books written on the subject of money before the war take as their background the battle between bimetallism and the gold standard. That issue is now chiefly a matter of history. The new issue is a battle between the gold standard and some form of fiat standard. The cataclysmic results of the war were felt in the field of finance with full and overwhelming force. The monetary standards of the world were destroyed. The reconstruction of the money standard was a paramount issue under post-war conditions of finance.

Scarcity, Stability, Production.—The criterion for decision between gold and paper is: Which standard will better insure a reasonable stability of the value of money? Financial plague and pestilence is largely attributable to fluctuations in the general purchasing power of money. The great objective in adopting a standard is to attain a fair degree of steadiness in the value or purchasing power of money. Stability of money value may be described as the middle link in a chain of three links. The final link is continuous maximum production of goods for the use of society. Stability is a connecting link with the process of production. Stability of value is not an end in itself. It is a means to the real end, which is the maintenance of production. A money

standard needs to possess stability of value because such stability is essential to constant production of the largest amount of useful goods.

But stability of money value is in turn absolutely dependent upon a rigid control of the quantity of money in existence. *Unless there is the right scarcity of money, there can be no stability of value.* To control stability of value, it is necessary to prevent over-issue or under-issue of money. Scarcity dominates stability. *The three links in the financial chain are, therefore, scarcity, stability, production.* The chief objection to a paper standard is that countries have invariably been tempted to over-issue. They have not been able to control scarcity of fiat money, and consequently violent fluctuations of money value have occurred, with grave injury to production itself. The chief argument for a restoration of the gold standard is that with all its faults it secures greater stability of value than any other standard. It secures relatively greater stability because the scarcity of gold is automatically regulated by the limited amount that can be mined each year. The deciding factor between the two standards is the control of scarcity of the money supply. But scarcity is important because it is the one road to stability of value. And stability of value is important because it is indispensable to continuous maximum production of goods for human use. More detailed analysis of these three links in the financial chain is offered in the chapters immediately following.

Supply of Money.—The importance of the scarcity of money makes necessary a more precise technical definition of the term supply. Supply refers to the number of units of currency spent in buying goods and services. This involves not only the active circulation from hand to hand but also the money reserves upon which bank credit rests. We look upon the supply of money in the same light as the supply of any other article in the market. Supply is the quantity of units of the article.

An increase in the rate of circulation of money is *equivalent* to an increase in money supply. The same number of dollars circulating twice as rapidly will do twice the work as a medium of exchange. The increase in velocity of circulation is equivalent to an increase in the supply of money.

Likewise, an increase in the amount of bank credit per dollar of money reserves has the same effect upon the value of money as an increase in the supply of money itself. Consequently, in considering the supply of the total medium of exchange, we are obliged to consider not only the quantity of units of money itself, but also the quantity of credit based upon money, and finally the velocity of circulation of both money and credit. The following chapter deals more fully with the relation of credit to money and to the price level.

Demand for Money.—The demand for money is a demand for ready purchasing power. Money is not an end in itself, but is desired because it gives a ready and convenient purchasing power over goods and services. Demand comes from people who want to hold portions of the

stock of purchasing power. They want to hold this purchasing power temporarily, with the expectation of spending it sooner or later for goods, services, or investments.

Every man's stock of ready purchasing power is a temporary hoard of money. The only way to make this purchasing power earn something is to spend it. One may spend it for stocks or bonds, or may establish himself in a business. One may trade in commodities or services. At such times, the ready purchasing power is active. Every man's pocket is like a reservoir. Money is being piped out all of the time in the making of purchases. Money is being piped in all of the time from the receipt of income. *The average amount kept there to care for this come and go of money is the demand for money.* The demand for money is a demand for a stock of ready purchasing power which can be quickly exhausted and replenished as a result of current expenditure and income. The longer a person hoards money before spending it, the greater the demand for money. The longer he holds onto his ready purchasing power before making purchases with it, the greater his demand for money. The greater the number of units demanded for ready purchasing power, the greater his demand for money. The stock of ready purchasing power is the demand for money.

The Value of Money.—The value of money is its buying power over goods and services. This value is measured by the use of index numbers showing changes in the general price level. These index numbers do not show the absolute value of money at any one time, but show how much the value of money at the given time differs from the value at some point of time in the past. *Comparative value, not absolute value, is the thing measured.* Some year is chosen as a base, and is assigned a price index of 100. The price index of any later year is calculated from that base. The thing to be measured is not value as such, but changes in value. Whether money has been stable or unstable in value is the question of deep concern. If the value has changed, we must know how much it has changed. If there have been fluctuations in the purchasing power of the dollar, we must know how great and how rapid those fluctuations are. We seek to know the price level today only because it tells us whether the value of money has risen or fallen as compared with yesterday.

The value of money is governed by the supply and demand of money. In this respect, the law of money value is no exception to the law of value which applies to any commodity. Like wheat or pig iron, money is an article, and like those articles of commerce, value is determined by the supply and demand of the articles. As the supply of money increases, its value tends to fall. As the demand for money increases, its value tends to rise. The greater the supply of money, the less tends to be the value of each unit of money. The greater the demand for money, the more tends to be the value of each unit of money.

This law of value should not be misinterpreted to mean that the change in value is in direct proportion to a change in quantity alone,

or to a change in demand alone. Neither changes alone; both change at the same time. One may change more than the other. One may change faster than the other. But ordinarily some degree of change is taking place in demand for money whenever a change is taking place in the supply of money. For this reason it would be untrue to assert, for instance, that if we double the quantity of money in a country, we should double the price level, other things remaining the same. The other things do not remain the same. Demand does not remain the same. Hence an increase in quantity may be partially or wholly offset by an increase in demand. Value is a resultant of two changes, those of supply and those of demand. To fasten attention on either one exclusively is to ignore half of the equation. To assume that one can change, the other remaining constant, is to be misled at the start by a contrary-to-fact assumption.

It should be noticed that *the value of money moves in a direction inverse to that of the general price level*. The higher prices are, the less they will buy. The value of the dollar is least when the cost of living is highest. A rise in the price index measures a fall in money value. A fall in the price index measures a rise in money value. Hence an increase in the quantity of money tends to raise the price level by lowering the value of money. And an increase in the demand for money tends to lower the price level by increasing the value of money.

The foregoing statement of the law of money value is a revised way of stating a theory that has become famous in the science of economics under the title of "the quantity theory." Many brilliant and bitter disputes have been fought over the principle of the quantity theory. Many of the adherents of the theory have misstated it in important details. Many opponents of the theory have misunderstood it in launching their attacks at its principles. Behind the modern version of the theory lies a vivid history of controversy. Not all theorists are agreed today upon the explanation of the value of money. It would be unwise to assume that the doctrines here set forth are a matter of common agreement among economists.

It is possible to reduce the quantity theory to a mathematical formula. According to such a formula, $MV + M'V' = PT$, where

M is the number of units of money in circulation

V is the velocity of circulation of money

M' is the number of units of credit in circulation

V' is the velocity of circulation of credit

P is the price level index

T is the volume of trade.

This formula expresses a mathematical identity, since it must be obvious that the equation declares the sum of all money payments equal to all of the exchanges for which the payments were made. The number of dollars multiplied by the number of times a dollar changes hands is necessarily equal to the total volume of business transacted.

In the interest of simplifying the equation, we may simply write it, $MV = PT$. In this form, we use M in the broadest sense of the word to include bank credit as well as currency. M is the total volume of medium of exchange of whatever sort. V is the average velocity of circulation of the total medium of exchange. The items P and T are the same as in the original statement of the equation.

Statistical studies indicate that the use of this formula requires a distinction between the *secular* trend of prices and the *cyclical* trend. So far as the secular or long-time trend is concerned, V is practically constant. Since 1890, population and production have both increased greatly, but there is good reason to believe that the velocity of circulation has remained nearly constant. Since V is constant, the only means by which business could be carried on without drastic reduction in prices would be by an increase in M . In order to hold prices steady, it would be necessary that when T shows a secular growth, M should increase in corresponding degree. If secular trend of M keeps pace with secular trend of T , then P will tend to remain stable. In other words, if supply of money and credit grows at the same rate as general trade, the price level will tend to avoid undue fluctuations.

But the situation is different with reference to cyclical fluctuations. Statistical studies indicate that in this case V varies directly with T . Each cyclical fluctuation in volume of trade is closely matched by a like fluctuation in velocity of credit and currency. Business activity rises and falls with money activity. Hence the relationship between V and T (expressed mathematically as $\frac{V}{T}$) tends to be *constant*.

The fact that this ratio tends to be constant leads to a further conclusion with reference to the general equation, $MV = PT$. Rewriting this equation, we have $M \cdot \frac{V}{T} = P$. Since the ratio $\frac{V}{T}$ tends to be constant, it follows that M must tend to vary directly with P . We can, therefore, express the equation simply as $M = P$ (or with stricter accuracy, $M \propto P$). This condensed form of statement of the equation of money and prices emphasizes the fact that quantity of money and credit bears a direct relationship with the general price level.

But having obtained this equation, we still do not know whether M causes changes in P or P causes changes in M . That is, we do not know from the equation as such whether prices rise first and force a subsequent increase in money supply in order to do business at the new price level, or whether money supply increases first, and forces a subsequent increase in the price level. Which is cause and which is effect? Which comes first and which comes after?

The answer to this question seems to hinge upon whether we are dealing with secular or cyclical price movements. Without attempting to go into detailed statistical explanation in this summary treatment, the writer will state directly the hypothesis that M changes first and

causes the later change in P where the secular trend is concerned, but that either may change first and be the cause where cyclical trend is concerned, depending upon certain "other factors." Upon analysis, these "other factors" resolve chiefly into the *state of business psychology*. In the business cycle, the confidence or pessimism prevailing may precipitate price changes before changes in money supply have had a chance to occur.

Most of the criticism of the quantity theory is aimed at the rigid cyclical application of that theory. It is, of course, not necessary to state the theory in so rigid a form. We might state the theory by saying that in secular movements, M causes P, but that in cyclical movements, P may change first and cause a change in M. Stated thus, the theory is certainly capable of being stoutly defended.

One of the bitterest opponents of the quantity theory, Mr. B. M. Anderson, Jr., readily concedes that M is the cause of changes in P when secular trend is involved. To quote the Anderson viewpoint: "It is perfectly true that a great increase or a great decrease in gold production, if prolonged over a period of years, will lead to marked changes in prices. Thus, for the world as a whole from 1873 to 1896, and for the United States from 1879 (when we resumed gold redemption of the Greenbacks) to 1896, it appears reasonably sure that the diminished world production of gold, and the increased use of gold in the arts and in circulation, tended to raise the value of gold and consequently to lower the level of prices. Beginning in the early 'nineties, production of gold increased, and from the middle 'nineties to about 1909, there was a marked decline in the value of gold, which substantially raised prices. Over long periods, therefore, we must recognize variations in the value of gold money as very substantially affecting commodity prices."⁴ During war inflation, M was the cause of changes in P. Even anticipations and expectations that M would further increase led to an increase in P before the actual increases in M had materialized. Holbrook Working, from statistical studies of the period 1890 to 1916, concludes that changes in the general price level follow changes in the quantity of circulating medium by a period averaging slightly less than one year.⁵ Kitchin finds that the lag of prices behind increases in gold supply is upwards of five years.⁶ The secular relationship of M and P is convincingly established.

The comparison of M and P on page 518 is based upon studies made by Carl Snyder. P includes not only wholesale prices of commodities, but also changes in retail prices, rents, and wages.⁷

⁴ Chase Economic Bulletin, *The Gold Standard vs. a Managed Currency*, March 23, 1925, p. 36.

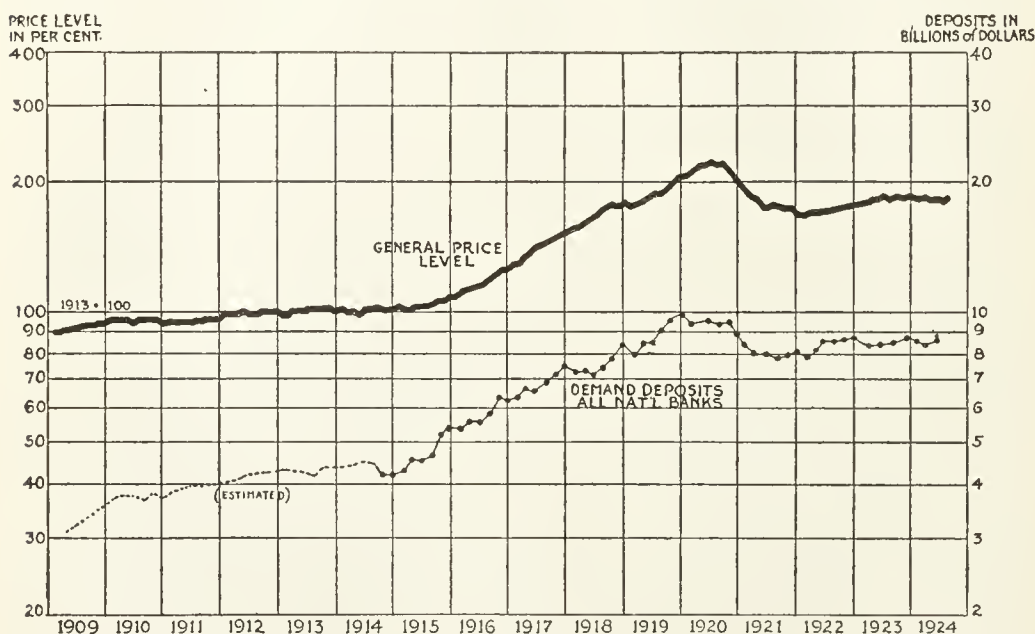
⁵ *Quarterly Journal of Economics*, Volume XXXVII, p. 253.

⁶ *Harvard Review of Economic Statistics*, August, 1921, p. 261. See also A. H. Hansen, *Cycles of Prosperity and Depression in the United States, Great Britain and Germany*.

⁷ *American Economic Review*, December, 1924, p. 709.

When prices are high, they may be undermined by a disintegration of business confidence, such as occurred in 1920.⁸ The psychological revolution may have the effect of drawing prices down, before the volume of money and credit has fallen. A depression neurosis may cause *P* to change before *M*. Conversely, a firm and determined temper in the business community may cause a price increase before any increase has occurred in money and credit. A prosperity complex may lift prices in spite of a constant volume of medium of exchange. Psychological pressure may lead to *P* changing first and causing a subsequent change

INDEX OF THE GENERAL PRICE LEVEL AND DEMAND DEPOSITS, AS MEASURED BY
REPORTED DEPOSITS IN THE NATIONAL BANKS



in *M*. There is no universal order of cause and effect between *P* and *M* in cyclical waves of prices. Sometimes one comes first and sometimes the other. The determining factor is the psychological factor. Perhaps even this notion oversimplifies the matter, for it is no easy task to adjudge the psychological factor. It is made up of many influences, among which may be mentioned the state of production, the expectation of profit, the exhaustion of bank credit, the rate of business failures, and the like. But all of these should be comprehended in the human variation in the price equation. $M = P$ is a purely mathematical formula. It assumes that the human element is constant. It assumes that the psychological factor is fixed. But we must take into account the fact that although mathematically the factors represented in the equation may be assumed as fixed and unalterable, nevertheless, psychologically,

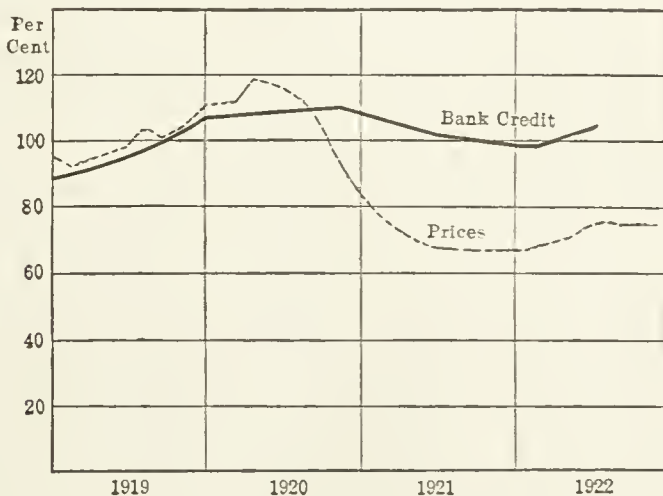
⁸ The Federal Reserve Board has found that in the cyclical fluctuations from 1919 to 1922, the tendency was for changes in bank credit to lag behind the changes in prices, both on the upward and the downward trend of business.

they are not fixed. A given quantity, M , will have more or less effect on P according as people's minds are oppressed with fear or inspired with faith. The human equation is fully as important as the algebraic equation. In cyclical movements, the human equation has to be reckoned with.⁹

Additional applications of value theory will be made in each of the three following chapters, and details of the theory will be elaborated more concretely.

The Importance of Price Fluctuations.—Price movements are important chiefly because they affect different business classes and interests unequally. If such movements were uniform in the various lines of production and trade, they would offer little harm to business. If they occurred at the same time, and at the same rate, and to the same degree,

PRICES AND BANK CREDIT, 1919-1922
(1919 = 100)



The index of prices used is the United States Bureau of Labor Statistics all commodities index. The index of bank credit is derived from quarterly reports on total loans and investments of all member banks. The relations between M , i.e., bank credit, and P , i.e., prices, may be summarized as follows:

- Beginning of price decline, May, 1920.
- End of price decline, January, 1922.
- Per cent of price decline, 44.2 per cent.
- Beginning of bank credit decline, November, 1920.
- End of bank credit decline, March, 1922.
- Per cent of bank credit decline, 9.6 per cent.
- Lag of bank credit behind prices, 6 months.

Prices turned upward in January, 1922, but bank credit did not turn upward until March, 1922. The lag of bank credit was two months. The analysis usually seeks to find whether a rise in M causes a change in P or vice versa. It may be more significant to inquire whether M permits a change in prices. A rise in prices would be called to a halt if bank credit were adequately restrained. Even in those cyclical movements where M does not cause P , it nevertheless may permit P to change. In that case, a control of M would make possible a control of P .

See *Federal Reserve Bulletin*, Volume IX, 1923, pp. 1-4.

⁹ See also below, pp. 587-59, in a discussion of business cycles.

in all branches of the economic system, they would be a minor problem. But the cardinal feature of price movements is precisely that they move with glaring inequality, that they are never uniform for different trades, and that they affect scarcely any two branches of industry in the same way. In short, price changes are important mainly because of their inequality.

This inequality may be measured from the standpoint of various business interests. Debtors and creditors are affected unequally by price changes. If a creditor lends today \$1,000 and prices rise 100 per cent, when the loan is paid back the same number of dollars will be paid back but only one-half the purchasing power. The creditor will lose in terms of purchasing power one-half of the value of his money at the time he loaned it. What the creditor will lose, the debtor will gain. In times of rising prices, all lenders stand to lose, whereas all borrowers stand to gain. Conversely, in times of falling prices, borrowers stand to lose whereas lenders stand to gain. Inasmuch as an essential feature of capitalism is that nearly all business is done by borrowing and lending, this inequality of price changes as between debtors and creditors is of basic importance. If all business were done on a strictly cash and carry basis, there would be little to worry about. But the very fact that the bulk of all business is done on a credit and loan basis makes the inequality of price movements of the greatest concern.

When prices are rising, all people who practice thrift tend to lose. As savers and investors they are lenders of capital, and during rising prices lenders lose. The dollar is steadily depreciating in value. All depositors in savings banks lose. All buyers of life insurance lose. All buyers of bonds lose. The reward for their prudence and thrift is loss through depreciation of the dollar. If a working man had saved \$1,000 in 1913 and had put it in a savings bank for safe keeping, in 1924 the purchasing power of the principal would have been barely two-thirds what it was in 1913. If a prudent man had left to his family at his death in 1913 a bequest calculated to give them a net income of \$3,000 annually, the family would have received in 1924 an income which in purchasing power would have been only two-thirds that amount. If a man bought bonds in 1896 and held them until 1920, the value of the principal was less than one-third in the latter year what it had been at the start. What savers and lenders lose through inflation, borrowers gain. People fall into the belief that they can buy "gilt-edged bonds," "fixed incomes," conservative investments of permanent value. They are utterly deluded. The most conservative investments are the worst sufferers when inflation sets in. All over Europe, the pre-war savings of the middle classes, invested in bonds, mortgages, or bank deposits, were wiped out almost entirely, as a direct result of the violent inflation in the continental countries. Inflation made a bitter tragedy in the lives of all those who had worked the hardest and saved the most conscientiously. Against the ravages of inflation, property savings have no protection. There is no such thing as security of property in the

face of inflation. The guarantees of the Constitution that no person shall be deprived of property without due process of law are absolutely without avail when people are deprived of their property on a gigantic scale by changes in the value of money. People excoriate the Bolsheviks for confiscation of property in Russia, but the confiscation of the property of all capitalistic savers by the hand of inflation is no less damaging. The injustice and disaster that ensue from the inequalities of inflation are nowhere more poignant than in the lives of those who save and invest.

The enterpriser in business tends to gain while savers lose. He borrows what they lend. During rising prices, business profits tend to increase. Business expenses are incurred on the level of today's low prices, but receipts are gathered in at tomorrow's high prices. Corporations borrow capital today, and when they pay back the capital tomorrow, they return the same number of dollars, but not the same amount of purchasing power. In the meantime each dollar has depreciated in value. Materials bought low today are sold high a few months later. When inflation becomes extreme, business men amass fortunes by borrowing to the limit on today's price scale, and repaying on tomorrow's price scale with depreciated money units worth a slight fraction of their former value. The famous fortune of Hugo Stinnes in Germany was built up in large measure by just this process of borrowing in good marks and repaying in practically worthless marks. Owing to the inflationary gains of business, the charge of profiteering is fastened upon the heads of business men during rising prices. Prosecuting attorneys try to suppress rising profits by legal restraint. Legislators try to pass stringent laws to curb the profiteers. Demagogues and agitators inflame the minds of the people against business men generally. But what they all fail to grasp is the fact that profiteering so called is not a sign of special avarice or wickedness but is merely a sign of the depreciating value of the dollar. *The so-called profiteer is a consequence, not a cause, of the hated rise of prices.* Even his extra profits are often profits extra in name but not in fact. If business makes twice as many dollars of profit, but each dollar has only half its former purchasing power, business has made no gain in real profits. When deflation occurs, on the other hand, profits dwindle and business men lose. Bankruptcies and failures increase. The inequalities of price changes increase the business man's risks enormously and unsettle his calculations. Stability of money value is therefore of fundamental importance to the business men as a class.

The laboring classes suffer from price changes as heavily as any single group. While prices are rising, they find that wages lag behind. The cost of living becomes harder to meet. Strikes occur to force wage increases. While prices are falling, wages tend to fall more slowly. Employers, in order to reduce expenses, propose cuts in wages. Strikes then occur to resist wage decreases. Labor has to be on the war path the whole time, whether prices are going up or down. If prices are going

up, labor strikes *to bring wages up*. If prices are going down, labor strikes *to keep wages up*. Continuous unrest and discontent surround the entire process. But even more serious than wage difficulties is unemployment. When prices are rising, labor tends to be fully employed. But when the reaction comes, and prices are falling, labor is thrown out of employment. When the reaction of 1920 came, upwards of six million laborers were unemployed in the United States. An army of unemployed tends to become an army of discontent, an army of radicals. Statesmen lecture to the masses upon the wickedness of radicalism and warn the public that revolution is a menace of the hour. But one thing they neglect, and that the most important thing, namely, that the evils which cause their alarm largely flow from the changes in the value of the dollar, the changes in the cost of living, the changes in the purchasing power of wages, the changes of employment which accompany the reaction from inflation. A great part of labor unrest is due, not to the alleged wilful greed of labor, but to the inequality of price changes which falls with heavy hand upon the working classes. Stability of the value of money is, therefore, of the utmost importance to labor.

When prices are rising, farmers like other business classes feel prosperous, but when deflation comes they are among the heaviest sufferers. A farmer who took out a mortgage on his farm in 1896 found it easier and easier to pay off principal and interest as the dollar steadily depreciated up to 1919. But a farmer who took out a mortgage in 1919 lost heavily in the drastic deflation which occurred during the next five years. Farmers all over Europe who were loaded down with pre-war mortgages threw off their burden of debt by payment to the landlords in depreciated francs, marks, or other fiat money units. On the other hand, farmers tend to suffer from taxation what they occasionally gain from inflation. Land values are assessed at high levels when prices rise. Later when prices fall, assessments tend to remain high and the burden of inflated taxation is severe.

Another class of business interests which suffers from inflation is public utilities. These industries have their rates regulated by public service commissions and such bodies as the Interstate Commerce Commission. Private industries may raise their prices ever so much, but public utilities cannot exceed what public regulation will allow. Meantime, all their expenses tend to rise just as fast as do the expenses of private industries. Since they cannot recoup their rising expenses by equally rising prices, they are unable to make a profit. All public utilities face a crisis when prices are rising. Bankruptcies multiply, and losses mount high. On the other hand, when prices tend to fall, public utilities are favorably situated since their rates tend to lag behind the fall of other prices. While deflation lasts, they improve their position at the expense of other industries.

The volume of production tends to increase when prices increase and to decrease when prices decrease. Inflation of a mild sort acts as a

stimulant to production. Deflation of a mild sort acts as a deterrent to production. This cause and effect connection often leads to the supposition that inflation is good for business and ought to be deliberately brought about. The difficulty occurs when inflation reaches an advanced form and brings on the reaction of deflation. *After production reaches its maximum limit, the issuance of more money and credit does not in any way increase the output of wealth.* It simply creates a fluctuation in the value of the dollar, a change in the measuring rod of value. More money thereafter cannot possibly increase production, but it can and does increase prices. The reaction to deflation eventually occurs, and is marked by unemployment, closed factories, and under-production. Consequently there is no net increase of wealth in the long run from the stimulant of inflation. Inflation is not a permanent basis of fundamental prosperity and production, but is only a fleeting show of these desirable ends. Production can be sustained at a normal maximum capacity only by approximate stability in the value of money itself.

All classes and groups which suffer from the inequalities of price changes are constantly faced with the necessity of adapting themselves to price maladjustments in all departments of business. Wholesale prices tend to move earlier, faster and further than retail prices. Wages and rents tend to lag behind commodity prices. Capital prices, in the form of interest rates, tend to move slowly and to move later than commodity prices. Taxes and property values move unequally. Commodities used by producers for further manufacture fluctuate differently from commodities used by consumers. When the price level is moving, the unequal changes in all these different lines destroy any normal balance between prices. Maladjustment ensues. Disturbance prevails. Price balance is utterly impossible as long as the value of money itself is unsteady.

Finally, it remains to be observed that the inequalities set in motion by inflation and deflation are influenced by the rate of the price movements. Very slow changes in price levels exert the same *kind* of influences as very fast changes, but to a much less *degree*. If prices rise only 1 to 2 per cent a year, business can adjust itself to the change. If prices rise 5 to 10 per cent a year, business is seriously affected. If prices rise 50 to 100 per cent a year, business is critically affected. If, as in Germany, and other countries they rise thousands of per cent a year, business is disastrously affected. The speed of inflation or deflation is of vital importance, and the inequalities which flow from price changes are at their worst when the speed of such changes is at its highest.

From the illustrations that have been given, the vital importance of prices and of money value in the affairs of business should be evident. The inequalities of the effects of price changes are everywhere apparent. The inequalities as between debtors and creditors, as between investors and enterprisers, as between those who work for profits and those who work for wages, as between private industries and public utilities, as

between farmers and non-farmers, as between taxpayers and taxing authorities, and as between producers and consumers, are universal and all inclusive. And yet, in spite of the clear cause and effect relations between price changes and all these things, popular opinion invariably attributes the ills which flow from inflation and deflation to causes other than the value of money. Business men themselves attribute the maladjustments of economic life to everything and anything except changes in the value of money. Not that the value of money is the only force which requires attention, but that it is one force which rarely receives the kind of attention which it unquestionably deserves. Much of the confusion in the public mind about the cost of living, profiteering, unemployment, wage unrest, price fixing, watered stock, high rents, unjust taxation, Wall Street, and other vital issues can be cleared up only by a realization of the part which the changing value of money plays in our economic life.

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CHAPTER XXVI

PRICE MOVEMENTS

Since all economic forces crystallize in the form of prices, it is an essential of economic science to study the movements of prices. It is difficult to conceive of any influence whose economic significance is not measured and interpreted in a price movement somewhere.

Instead of limiting our study to value in the abstract, or to value as a subjective concept, we can make the study definite by considering concrete price movements. Price study is simply one way of analyzing value, but it is a specific and objective way. It is a way which permits of measurement by the use of index numbers. Value in the abstract cannot be measured. Value as reflected in prices can be measured by price indexes. Such indexes do not tell us everything that is desired about value. They are not a complete key to all the problems of value. But they offer the most positive and useful method of studying value which we have.

The Price Index as a Measuring Device.—(1) *The Base Period.* As a rule, a base period is selected to represent 100, and this base may be average prices for a year, or for a number of years. Thus, the wholesale price index of the Bureau of Labor Statistics originally took the average for the period 1890-1899 as a base of 100. Since the World War, the chief comparison has been between post-war and pre-war prices, and consequently the base year has been shifted to 1913. Saurbeck's (now continued by the *Statist*) index number of wholesale prices in England takes as a base period the decade 1867-1877. The deciding factor in selecting a base period is simply which base will give the most significant comparison for the particular purpose in hand. A base period in the recent past tends to develop greater accuracy in the index number than a base period in the remote past. The remoteness of the base period and the purpose of the price comparison are important in determining the most serviceable base period.

(2) *The Average Derived from Widely Differing Price Fluctuations.* An increase in the index of the average price of a number of individual commodities does not imply that the price of each commodity has undergone a uniform increase. On the contrary, even when the prices of hundreds of commodities are averaged it is difficult to find any two commodities which have undergone the same increase. In any year a considerable percentage of the commodities fall in price while a somewhat smaller percentage remain more or less unchanged and a considerable percentage rise in price. *A price average consists of a great diversity of fluctuations of individual commodities, some rising, some falling, some*

remaining unchanged. However, in the midst of this wide diversity, there appears this outstanding characteristic, that *the fluctuations are highly concentrated about a central tendency.* Small fluctuations up or down show a much greater frequency than extreme variations, and this dense concentration reveals a general drift in the whole mass of changes. Because of the fact that the widely diverse fluctuations are highly concentrated about a central tendency, it is possible to measure variations in the general average with a close approximation to accuracy.

To illustrate the diversity of price movements we may compare the prices of a variety of commodities in July, 1921, with their prices in the year 1913.

Commodity	Price Index in July, 1921 (1913 = 100)
Tin	62
Corn	98
Cotton	97
Zinc	82
Cattle	99
Mutton	102
Cloths and clothing	179
Lumber	200
Shoes	225
Paper	257

In the midst of this diversity, there was during this same period a central tendency of price fluctuations. This central tendency was measured by the fact that the price index for the average of all commodities at wholesale in July, 1921, stood at 148 as compared with 100 in 1913. *The general average represented the change in the purchasing power of the dollar, or the change in the value of money.*

(3) *The Number of Commodities.* The number of commodities to be included in a price index will depend upon the purpose for which the index is intended. An index to be used as a business barometer for forecasting purposes may require as few as ten commodities. This is the number included, for instance, in the index computed by the Harvard Committee of Economic Research. An index of food prices may conveniently include a somewhat larger number. For example, the *Annalist* index is based upon twenty-five food commodities. An index of the general purchasing power of money should include a relatively large number of commodities. Several European indexes include about forty-five commodities. The principal index number in the United States, that published by the Bureau of Labor Statistics, includes more than four hundred articles, and the index published during the war by the War Industries Board included 1,437 articles. Regarding the number of commodities, Irving Fisher offers the following opinion: "Seldom are index numbers of much value unless they consist of more than twenty commodities and fifty is a much better number. After fifty, the improvements obtained from increasing the number of commodities is gradual,

and it is doubtful if the gain from increasing the number beyond two hundred is worth the extra trouble or expense."¹ Fisher's own index number of general purchasing power consists of approximately two hundred commodities. A large number of commodities tends to wipe out possible errors from weighting, or inaccurate price calculations, or selection of unfair samples of commodities.

(4) *The Selection of Commodities.* An index number of the general purchasing power of money cannot include each and every commodity involved. The index has to be based upon samples which are supposed to be fairly representative of the whole mass of commodities. But the task of sampling and selecting leaves room for a great deal of personal opinion and possible error on the part of the index statistician. The difficulty lies in deciding which samples are truly representative and which are not.

The assortment of samples depends in large measure upon the purpose of the index number. Whether to include raw materials or finished products, foods or minerals, luxuries or necessities, and in what proportions to include them is a perplexing problem. An index to be used for business forecasting would include sensitive prices which tend to move in advance of the great mass of prices. The purpose of the index is all important. In using any of the general indexes it is important to know upon which basis the commodities are selected before putting the index to any use requiring precision and accuracy.

If the assortment of commodities is fair, the number of commodities included may be very small without impairing accuracy. Where the sampling is haphazard and loose, the inclusion of a large number of commodities tends to wipe out in part the errors of sampling.

A general principle of choice is that those commodities are preferable that are substantially uniform from market to market and from year to year. Commodities which are highly erratic and which show violent degrees of fluctuation are to be shunned. They obscure the central tendency of the price movements.

The Bureau of Labor Statistics selects 404 commodities from nine main groups. For instance, the index for August, 1924, was made up from the following groups:

Commodity Group	Price Index, August, 1924 (1913 = 100)
Farm products	145.3
Foods	144.0
Cloths and clothing	189.9
Fuel and lighting	169.7
Metals and metal products	130.4
Building materials	169.2
Chemicals and drugs	130.1
House furnishings	171.0
Miscellaneous	115.0
All commodities	149.7

¹ *The Making of Index Numbers*, p. 340.

Moreover, the distribution within these major groups must give due consideration to several guiding principles. For instance, it is proved by statistics that raw materials show wider oscillations in price than finished commodities. Likewise, it is known that the prices of farm crops are highly responsive to weather conditions and climate, whereas prices of minerals are more responsive to forces of the business cycle. Consumers' goods are steadier in price than producers' goods. To make an accurate index a fair amount of samples must be drawn from all the important groups and classes of commodities.

(5) *The Collection of Data.* Two kinds of data are required, prices and quantities. The quantities are necessary in order to "weight" the price quotations used. If twice as much of one commodity is sold as of another, then the former commodity is twice as important in affecting the general price level. The price index of general purchasing power should reflect the relative importance of each commodity. The estimate of quantities has to be procured from trade associations, government reports, and census records. These reports offer so many conflicting estimates of production that the reconciliation of the estimates requires much skill and patience. An approximate price measurement may be secured without bothering to weight the estimates. If strict accuracy is not required, price averages without weights may be used. These seldom allow of error greater than 10 per cent, and especially when a large number of commodities are used in the index, the error is so small that the index is sufficiently accurate for general purposes.

The collection of prices is a highly complicated task. Most American index numbers are made from market prices, but some indexes here and abroad are made from import and export values, from contract prices, and from institutional prices. In any market, there are several grades of each commodity. The field collector of prices must settle upon a certain grade, and keep to that grade uniformly over a period of years. Moreover, prices vary from locality to locality, and from hour to hour during the day on which they are quoted. The gaining of uniform price quotations is therefore a task requiring "intimate familiarity with the statistical methods by which they are made, endless patience, judgment of a high order, and tactful diplomacy."²

The studies of Mitchell indicate that in so far as the price indexes computed by different authorities fail to agree perfectly, the discrepancies are due largely to differences in computing weights and price quotations and in selecting the sample of commodities. The importance of the field work is of paramount importance. If there is error or laxity at this stage of the process, the index number will be false, no matter how perfect the mathematical formula may be which the statistician uses.³

(6) *Formula and Mathematical Method.* The most familiar index formula is the simple *arithmetic average*. If we take the price of wheat,

² *Bulletin* 284 U. S. Bureau of Labor Statistics, p. 26, W. C. Mitchell.

³ *Ibid.*, p. 104.

of corn, and of pig iron in 1913 as 100 and find that in a certain later year their prices have changed so that the index of wheat is then 130, of corn 140, and of pig iron 190, the arithmetic average in the later year is the sum of these indexes, 460, divided by their number, 3, which gives 153. This index can be weighted by merely adding in more than once the commodity which deserves higher importance. Of this method it may be said that it does not give results accurate enough for precise and close measurements. Indeed, Fisher advocates "the total abandonment of the simple arithmetic type of index number."⁴ This extreme position, however, is unwarranted since for many purposes, only fair approximation to perfect accuracy is needed. Moreover, the ease in the use of the arithmetic average, and the fact that everybody is familiar with it make it a valuable instrument of measurement. It is valuable, that is, provided the user understands that the results allow for a margin of error of possibly 5 and sometimes as much as 10 per cent.

Instead of adding together the price relatives of wheat, corn, and pig iron, we may multiply them together and take the cube root. The result would be the *geometric average*. If we have ten commodities, we multiply them all together and take the tenth root. Thus, to compute the geometric average, we multiply together all the individual relative prices for a given date and extract the n th root, n standing for the number of commodities included. The geometric average yields more accurate results than the arithmetic, and where weights are not available, the geometric average offers fairly satisfactory results. For general usage, it has the slight disadvantage that it is not as easy to calculate as the arithmetic average.

Instead of adding or multiplying the separate price relatives, we may simply select the middlemost number of the list. Thus the middlemost number of the following list of numbers, 2, 5, 6, 10, 30, is 6, and 6 is the median. This formula of index number is the simple *median*. It is more accurate than the arithmetic average and just as good as the geometric. It has the advantage of being comparatively easy to calculate. Where data are unavailable for weighting, the median may be used, and may be expected to give sufficiently accurate results to serve most practical purposes.

The foregoing types of formulæ require first calculating the percentage of price change individually for each commodity, and then taking an average or median of these various individual percentages. *These individual percentages are price relatives*. If instead of converting each commodity singly to a price relative we simply add together the actual prices of commodities, we arrive at a sum total of original price quotations. Comparison of such a sum total in a given year with the sum total of a base year gives a price index based upon the aggregate prices of the two years. This *aggregative index* gives good results when properly weighted, but when weights are not known, it is unreliable. There are two additional types of index number, the mode

⁴ *The Making of Index Numbers*, p. 30.

and the harmonic, but they are so slightly used that they need not be described here.

Where data on weights are not available, preference on grounds of accuracy is given to the simple median and simple geometric. The use of a large number of commodities will offset the disadvantage of a lack of data on "weighting." Some statisticians reject the arithmetic altogether, whereas others admit its use with cautions against possible margins of error. Where data on weights are available, it is possible to adopt a formula which reduces mathematical error to a negligible point. It would be out of place in a treatise of this character to describe the mathematical complications of "crossing weights" or "crossing formula," but it may be pointed out that an index formula is available which reduces the mathematical error in price averages to one-tenth, or even one-hundredth, of one per cent.⁵

Fisher analyzes 134 different formulæ for index numbers, and concludes that fully thirty of these are within less than one-half of one per cent of the ideal and that any of the thirty, so far as accuracy is concerned, is good enough to serve for all practical purposes. Fisher further shows that "none outside of this list need ever be used for any purpose where great accuracy is demanded, although about as many other formulæ are accurate enough for most purposes."⁶ As an instrument of measurement, the index number is just as accurate as any other devices of physical measurement, such as the pound or the foot. For all practical purposes the index can be considered as absolutely accurate, when properly computed.

Moreover, even some of the simplest formulæ are more accurate than were formerly supposed, and indeed accurate enough to show the primary facts of price movements. The simple median and the simple geometric, for instance, are usually correct within 6 per cent. Errors and discrepancies in these index numbers are less than those which result from most attempts to measure economic quantities. As Snyder states, "It is clear that even what is called a simple or unweighted index number may be, if the quotations are properly chosen and of sufficiently large number, about as well weighted and the index about as accurate as if to them a formidable array of laboriously ascertained weights has been assigned."⁷ And to quote Mitchell, "About the major facts of price history, the testimony of the leading American index numbers is unanimous. If prices are accurate, the particular method used in computing the index is of secondary importance."⁸

⁵ The so-called "ideal" formula, formula number 353, is $P_n = \sqrt{\frac{\sum p_n q_n \cdot \sum p_n q_o}{\sum p_o q_n \cdot \sum p_o q_o}}$

where Σ indicates "the sum of such terms as"

p_n = the price of any commodity in a given year or period

q_n = the quantity of that commodity in the given year

p_o = the price of that commodity in the base year

q_o = the quantity of that commodity in the base year.

⁶ *The Making of Index Numbers*, pp. 241-248, 265.

⁷ *The New Republic*, June 18, 1924, p. 106.

⁸ *Bulletin 284*, United States Bureau of Labor Statistics, pp. 96, 104, 110.

(7) *The Purpose of the Index Number.* As has been pointed out in the foregoing treatment of various phases of the index number, the purpose for which the index number is intended makes all the difference in the world in the method of its construction. The base period, the assortment of commodities, the number of commodities, the weighting, the collection of prices, and the selection of the formula,⁹ depend upon the purpose in hand. The original purpose of index numbers was to measure the purchasing power of money and this promises to continue one of the leading purposes. But more recently the uses of index numbers have expanded greatly. We have indexes of the cost of living, of workingmen's budgets, of retail prices, of stock and bond prices, of foreign exchange rates, of quantity of production, of national income, of interest, of rents, of wages, of volume of employment, of freight traffic, of the business cycle, and of many other business factors. We have indexes for business at large, for separate trades and industries, for individual plants in a given trade, for separate departments of the individual plant. The index number has become an indispensable tool for economic thinking. Wherever we attempt to verify our theory or test out our hypothesis we are dependent upon the index number as a measuring device. By adapting the method of its construction to the particular purpose in hand, we are able to secure interpretations which are accurate and valid. *The purpose is everything.* In the present chapter we are chiefly interested in index numbers of prices, and particularly in index numbers of the general price level as a measurement of the general purchasing power, or value, of money.

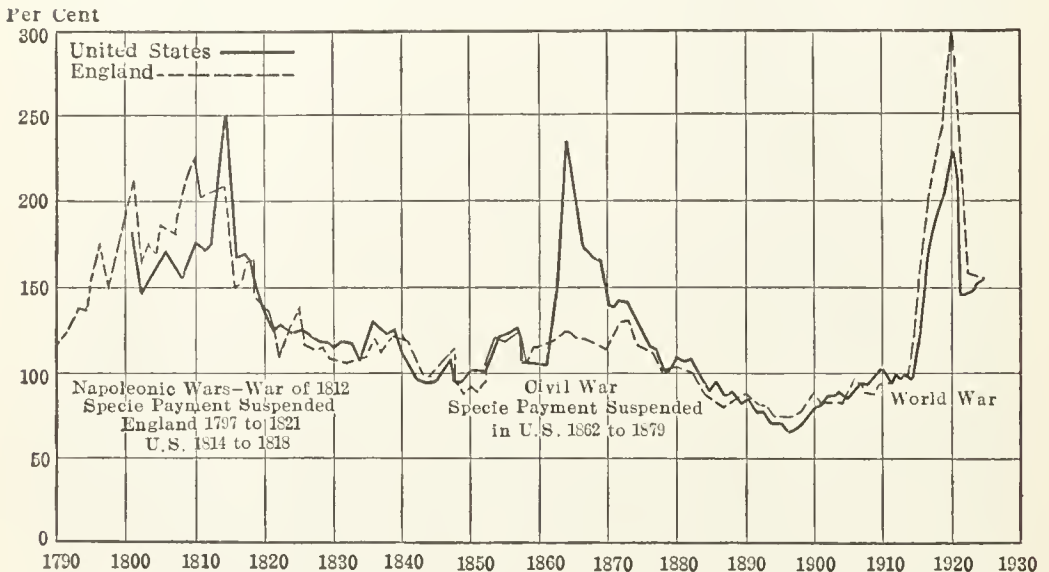
The Secular Trend of Prices.—The secular trend of the price level is the long-time trend prevailing over a period of years. The history of price levels shows clearly that over a period of a decade, or a quarter of a century, or more, the purchasing power of money may be gradually declining, whereas at another time and for a period of a decade, or a quarter of a century, or more, the purchasing power of money may be gradually increasing. The chart of wholesale price movements in England and the United States (see page 532) shows these long swings of the purchasing power of money during more than a century and a third.

The striking similarity of price movements in both England and the United States is simply a manifestation of the fact that the price levels of all countries using the same money standard tend to fluctuate in unison. The forces fixing the secular trend of the price level are world-wide. All countries using gold money are bound together by common forces which govern the purchasing power of their money. What sways the price level of one gold standard country sways the price level of all.

⁹ Statisticians are not agreed as to whether in the *selection of the formula* the index number that is best for one purpose is equally good for all purposes. Fisher claims that there is one best index number, and that the formula as a formula is good or bad regardless of the purpose for which the index is to be used. Mitchell and others, on the other hand, insist that even in the selection of the formula, the purpose is all important. See *The Making of Index Numbers*, pp. 229-234, and *Bulletin 284*, United States Bureau of Labor Statistics, p. 23.

If a country temporarily abandons the gold standard, its price level runs an erratic course governed by its internal supply and demand of paper money. To understand the forces involved in long-time and world-wide price movements, a brief survey of the history of price trends is indispensable.

WHOLESALE COMMODITY PRICES IN THE UNITED STATES AND ENGLAND,*
ADJUSTED TO 1913 AS BASE OF 100



* From index figures computed by the Federal Reserve Bank of New York. Indexes for the United States from 1860 to 1923 are derived from the United States Bureau of Labor Statistics. Indexes for England are based upon the Sauerbeck-Statist computations.

During the sixteenth and seventeenth centuries prices rose in Western Europe from 200 to 300 per cent. This rise was attributable in large part to the discovery of gold and silver in the New World and the consequent flow of these precious metals into the monetary circulation of the European countries. These centuries of inflation owed their depreciation of money primarily to this new source of supply of specie.

Looking at price history over a period of several centuries, we find that although prices have sometimes fallen they have more often risen. In general there has gone on a persistent and progressive depreciation of money. In 1924, for instance, prices in France were four to five times as high as they were in 1914. In 1914, prices were four to six times as high as they were five hundred years ago and upwards of ten times as high as they were one thousand years ago.

The 134 years of price movements recorded in the above price chart may be studied from the standpoint of three chief kinds of periods: periods of wars, periods of slowly falling prices, periods of slowly rising prices.

The periods of wars were times of extreme high points in price movements. Extremes of inflation and depreciation were products of

war financing. The first high point of inflation coincides with the Napoleonic Wars in Europe and the War of 1812 in the United States. Excessive issues of inconvertible paper money were characteristic of these wars. The second high point of inflation coincides with the Civil War in the United States. Since England was not a participant in that struggle, the English price level does not show as violent an incline as that of the United States. Excessive issue of inconvertible paper money in the form of the Greenback was the distinguishing characteristic of this war period. The third high point of inflation coincides with the World War. Excessive issue of inconvertible paper money was the characteristic of the period, with one notable exception. That exception was the United States. In the United States, paper money was at all times convertible into gold, but inflation took place none the less. The gold of other countries was dumped into the United States, and on this gold as a reserve backing, note issue and bank credit expanded excessively and brought about inflationary results just as truly as though the gold standard had been abandoned outright. Gold inflation in the United States and paper inflation in the rest of the world characterized the price movements of the World War period. *The cardinal lesson of a century and a third of recorded prices is that war produces inflation. Where war is, there inflation, violent and extreme, ensues.*

The periods of falling prices are found in three major groups of years. The first of these was from the War of 1812 to 1850. Prices fell more than one-half and the value of money doubled. Owing to the exhaustion of gold and silver mines, very little of the precious metals was mined. At the same time that there was a falling off in production of new specie, there was a steady growth in demand for new money due to the normal growth and expansion of the trade and population of the country. The scarcity of gold and silver supply, coupled with the increase of demand for a medium of exchange, increased the value of the dollar. The second period of falling prices dated roughly from the end of the Civil War down to 1896. Again the cause was a slump in the rate of production of specie coupled with an increase in demand. This time gold was the precious metal of primary importance because by the end of the period the gold standard had been almost universally adopted. Gold supply suffered from the exhaustion of old mines. Gold demand steadily grew, not only because the widespread adoption of the gold standard called for the metal but also because the steady growth of trade and of population called for more money to do business with. The third period of falling prices is the period since 1920. The early years of this period have shown a price decline accompanied by a contraction of war time note issue and bank credit. Whether the next decade or next quarter of a century is to be a continued period of falling prices depends upon a number of factors which at present are unknown. The future rate of gold production and the future demand for gold are the chief unknown factors which are of concern in this connection.

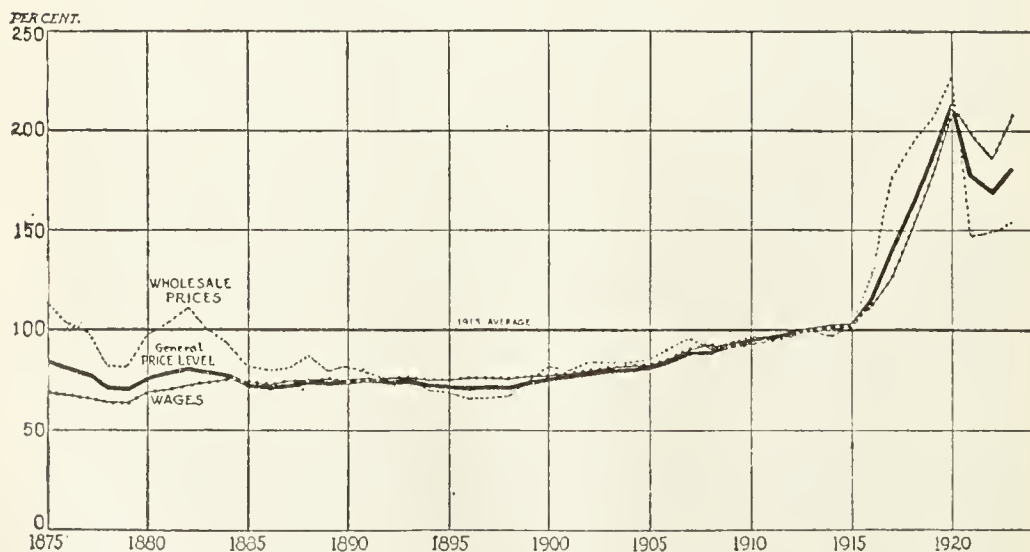
The periods of rising prices may also be considered in three main

groups of years. The first period was that prior to the years 1810-1815, when prices rose. The rise was in part due to the increase of the precious metals, but perhaps chiefly due to the excessive issue of notes and to the fiat money of the war years in the United States as well as over seas. The second period ran from 1850 until after the Civil War. The price rise during the early part of this period was due to the flood of gold produced in the newly discovered mines of California and Australia. The supply of gold exceeded the normal growth of demand for it. The price rise during the latter part of this period in the United States was almost entirely due to the paper money inflation by the excessive issue of the Greenbacks. Finally, prices rose about 50 per cent between 1896 and 1914, and from 1914 to 1920 underwent a leap unparalleled for violence. The rise of the early part of this period was due to increasing gold output from new mines and to the introduction of new chemical processes of mining. The rise of the World War part of the period was due to excessive note issue and bank credit under the abnormal war time conditions.

The foregoing price changes have been indicated by indexes of wholesale prices. Although wholesale prices reflect roughly changes in retail prices, rents, wages, and other price items, nevertheless it is valuable to have an index which combines all these price factors. There is given below such a composite index, based upon wholesale prices, cost of living, rents, and wages, weighted according to the relative importance of each factor in the sum total of expenditures.

AN INDEX OF THE GENERAL PRICE LEVEL COMPARED WITH WHOLESALE PRICES AND WAGES

(1913 = 100 Per Cent)



Reprinted from April 1, 1924, *Monthly Review* of the Federal Reserve Bank of New York.

INDEX FIGURES OF THE GENERAL PRICE LEVEL, 1913 = 100 *

Year	Index	Year	Index	Year	Index	Year	Index	Year	Index
1875 ..	84	1885 ..	73	1895 ..	72	1905 ..	82	1915 ..	103
1876 ..	80	1886 ..	72	1896 ..	71	1906 ..	85	1916 ..	116
1877 ..	77	1887 ..	73	1897 ..	71	1907 ..	89	1917 ..	140
1878 ..	71	1888 ..	75	1898 ..	71	1908 ..	89	1918 ..	164
1879 ..	71	1889 ..	74	1899 ..	74	1909 ..	93	1919 ..	186
1880 ..	76	1890 ..	75	1900 ..	76	1910 ..	96	1920 ..	213
1881 ..	79	1891 ..	76	1901 ..	77	1911 ..	96	1921 ..	178
1882 ..	81	1892 ..	74	1902 ..	79	1912 ..	99	1922 ..	170
1883 ..	79	1893 ..	75	1903 ..	80	1913 ..	100	1923 ..	181
1884 ..	76	1894 ..	72	1904 ..	81	1914 ..	101	1924 ..	181

* *Journal American Statistical Association*, June, 1924, p. 310.

According to this chart, the general level of prices is more stable than wholesale prices. Wages show a tendency to lag behind both on the fall and on the rise of prices. The cost of living is not given on the chart because in general it practically coincides with the curve of the general price level. In the period during and since the World War, the wholesale price curve rose higher at the peak than the general price curve, but the wholesale price curve also fell lower after 1920 than the general price curve. Fully six years after the armistice, the *general* price level was still 10 per cent *above* the last year of the war, whereas the *wholesale* price level taken by itself was more than 20 per cent *below* the last year of the war. The general price level shows distinctly greater stability than the wholesale price level alone.

The fluctuations of secular trend have been continuous, and the effects upon business have been highly disturbing. Nevertheless, the range of these fluctuations has been relatively limited. The ups and downs of the price trend have been held within relatively narrow bounds. The only exception to this relatively limited range of fluctuation has been the periods of sharp war inflation. During normal peace times, the range of fluctuation has been conspicuously restricted. The chart of wholesale prices¹⁰ shows that the price level of about 1910-1914 was approximately even with the price level of 1845-1850. If we take these two points as a base line, we find that for nearly a century peace-time prices were never more than 30 per cent above or below the line. The maximum rise and fall of wholesale prices during normal times was always within this range of about 30 per cent above or below the midway line. Even after the monetary chaos of the World War, the price level of the United States in 1924 was only about fifty points above this midway line of comparison.

The same conclusion is borne out by the curve showing the general purchasing power of money.¹¹ If the forty-year average since 1875 is

¹⁰ See above, p. 532.

¹¹ See above, p. 534.

taken as a line of comparison, it is found that the extreme decline was only 12 per cent below the line in the '70's, and the extreme rise was only 25 per cent above just before the World War. The post-war deviation was extreme. Both price charts bring out the fact that in spite of constant and severe fluctuations, prices have nevertheless tended in peace times to keep within a fairly close range of their average or midway point. In the midst of constant secular movement, there has been relative stability. In the midst of constant fluctuations, there has been a relatively narrow limit to the fluctuations. The gold standard has brought instability, but it has been an instability which, except for war, has been anchored to a central line.

As a consequence of this limited range of fluctuations in normal times, the public mind has come to have great confidence in the power of the gold standard to preserve relative stability of prices. The devotion to the gold standard has been more than a mere superstition of the mob. It has been a confidence in *relative* stability of the purchasing power of money. And this confidence has been reinforced by the disasters that have befallen the value of money whenever war has forced inconvertible paper money into circulation. War seems to mean violent inflation, gold standard or no gold standard. The United States had inflation during the World War even though it held to the gold standard, but it was an inflation much less severe than that which befell every European country off the gold standard. *The gold standard commands confidence because its history during normal times shows relative stability of the purchasing power of money.* This confidence cannot be shaken until a better means of regulating price fluctuations can be demonstrated. With all its imperfections, the gold standard has done better than any substitute in securing stability of value. It falls far short of the degree of stability which industry needs, but it comes closer to that degree of stability than any substitute that has thus far been tried. In the present state of political confusion on monetary issues, the public is not without grounds for looking to the gold standard as a safeguard against chaotic instability of the value of money.

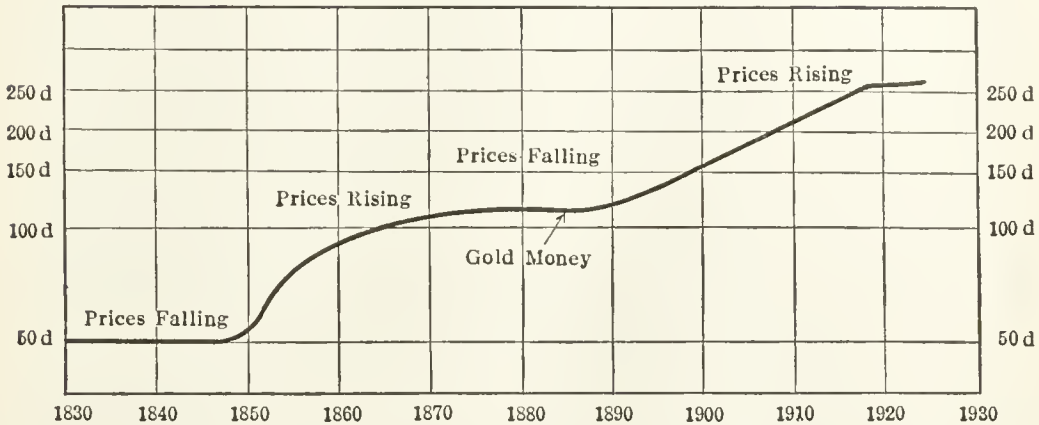
The Trend of Gold Money Supply.—The chart on page 537 shows the world's stock of gold money since 1830, in terms of pence per capita.

Although the chart shows a correspondence between rising prices and rising per capita gold supply, nevertheless this correspondence does not mean that the gold changes have their effect on prices immediately and instantaneously. A lag of something like five years exists between gold changes and their full effect on prices. When due allowance is made for this lag, the secular trend of the price level has been definitely responsive to the secular trend of gold supply.

A clear distinction must be made between secular price movements and short term movements. The short term changes are due in large measure to separate causes. The gold supply does not play the determining rôle. But the long term changes reflect decisively the changes in

gold supply. There the gold supply plays definitely the determining rôle.

WORLD'S STOCK OF GOLD MONEY PER CAPITA *



(This chart is constructed of logarithmic or ratio scales.)

* For the basis of this chart, see the *Harvard Review of Economic Statistics*, August, 1921, p. 261. For data on per capita stock of gold money in the United States, see *Report of Director of the Mint for 1923*, p. 106. The chart as it stands over-simplifies the problem somewhat. For instance, changing habits in the use of gold might be equivalent to an increase or decrease in gold supply in so far as the price level is involved, although the number of ounces of gold remained constant. This and other complications are discussed later in the chapter. The slight over-simplification of the present chart does not impair its fundamental significance.

In interpreting the effect of gold supply upon price trend, it is necessary to bear in mind the fact that not all of the gold supply goes into monetary uses. Of the annual production of gold, upwards of two-fifths ordinarily goes to non-monetary uses. During the twenty years ending in 1919, about 58 per cent of the gold produced was added to the stock of gold money. About 25 per cent went into the industrial arts in Europe and America. And about 17 per cent went into the gold hoard and industrial arts of India, China, Egypt and other parts of the Orient. This division of gold between the money demand and the arts demand has remained fairly constant over a long period of years, and was not materially disturbed even by the World War. Of every \$5 of gold produced, only about \$3 is added to the money supply.¹² The demand for gold in the arts tends to sustain its value. A decline in the arts demand would weaken the value of gold and tend to raise the general price level.

A certain rate of increase in the gold supply is normal. It is only an increase faster or slower than this normal rate which causes rising or falling prices. A stable long time price level requires, not a fixed gold supply but a normal increase in harmony with the needs of growth of population and growth of production and business generally. Price stability requires increasing gold. What, then, is the normal rate

¹² See *Review of Economic Statistics*, August, 1921, p. 259.

of growth of gold supply which would tend to bring price stability? Cassel has shown that such a rate of growth would have been about 3 per cent per annum for the period from 1850 to 1910. Irregularities in demand would prevent the use of such a rate in any absolute and inelastic sense. It is simply an approximate and long term normal average rate of growth. If this rate of growth be assumed as normal for later years, it follows that to keep the price level stable over long periods, the gold production must each year be approximately three per cent of the existing stock.¹³ Changes in habit and custom in the use of gold would, of course, throw this estimate off for the time being, but the significant fact is that such temporary deviations have not in the past undermined the fundamental normal rate of growth. It is important to inquire, therefore, How much does actual gold production at any time deviate from the normal rate of growth? When actual production exceeds normal, the secular trend of prices is upward. When actual production falls below normal, the secular trend of prices is downward. *Actual gold increase above or below normal increase governs the up or down secular price trend.* Prices fell prior to 1850 because actual gold supply did not keep pace with a normal rate of increase. Prices rose from 1896 to 1914 because actual gold supply ran ahead of a normal rate of increase. The relation of actual gold supply to normal rate of increase is of fundamental significance.

The actual supply of the future cannot be forecasted, but some factors which govern the future supply may well be examined. Discovery of new gold mines is unlikely, owing to the fact that geologists have pretty well explored the resources of the earth. Kitchin, in a careful study of gold supply, concludes, "From improved metallurgy little more is to be expected. In general, the principal producing countries seem to have passed their zenith and there are no new fields of importance to be recorded."¹⁴ Manufacture of gold by synthetic chemistry is possible, but the cost of such manufacture is prohibitive. The prospect is for a decline instead of a further increase in annual gold production. Already, the post-war period shows a sharp decline in gold production as compared with the pre-war period. The annual gold production for the eight years ending 1916 was nearly \$460,000,000. The annual production during the post-war period tends to fall about \$100,000,000 short of this amount. The actual production tends to be less than the normal production required to maintain a stable price level. Therefore, declares Kitchin, "But for the war we should be on the eve of a period of falling prices, as was the case in the first half of the last century and from 1873 to 1895."¹⁵

This whole problem of the *rate* of gold production is linked with the *cost* of production of the metal. As mines become partially exhausted, the cost of mining an ounce of gold increases. This tendency toward

¹³ See Gustav Cassel, *A Theory of Social Economy*, pp. 441-455.

¹⁴ *Harvard Review of Economic Statistics*, August, 1921, p. 257.

¹⁵ *Ibid.*, p. 259.

increasing unit cost of production must be considered in relation to the fact that an ounce of gold is fixed in *price* at \$20.67, but is not fixed in its purchasing power over other goods. *The price of an ounce of gold is fixed, but the cost of producing it changes and the purchasing power changes.* If the cost of producing an ounce of gold becomes more than \$20, obviously all profit from mining gold disappears. This is true no matter how much the general level of prices may have changed. Mines which cannot produce gold for less than \$20.67 an ounce have to go out of business. The cost of production limits the output. If new mines are discovered and production is thereby cheapened, gold output tends to increase. If new metallurgical discoveries cheapen the mining process, gold output tends to increase. In the post-war period, none of these cheapening tendencies is operative. The tendencies are the other way. Increasing unit cost is the post-war tendency. And increasing unit cost, as long as it continues, tends to limit output of the metal.

Not only is the world's total gold supply important but also the distribution of this gold supply between the several nations. The war brought certain drastic changes in the distribution of the world's gold supply. The glaring inequality of gold distribution since the war is shown in the following table:

Country	Per Capita Monetary Gold Stock in 1922 *
United States	\$35.57
Great Britain	15.70
Germany	3.94
France	17.08
Italy	5.91
Hungary .....	.14
Russia .....	.01
World	4.99

* *Report of the Director of the Mint, Treasury Department, 1924.*

The United States accumulated more than double the per capita stock of money held by any other country. From a per capita stock of \$18.90 in 1914, the United States increased to one of \$36.39 in 1923. The total stock of gold money in the United States in April, 1924, was about \$4,300,000,000 as compared with about \$2,000,000,000 before the war. Since the world's total monetary gold stock in 1924 was about \$9,600,000,000, it is obvious that the United States held about one-half the world's gold money supply. The process by which this gold stock was concentrated in the United States is a story of trade balances and international debts during and after the war. The explanation of the causes of huge imports of gold is reserved, therefore, for later chapters dealing with the balance of international payments. The significant point here is the fact of the quite abnormal distribution of gold money. If the excess gold holdings of the United States are returned to Europe, as Europe in the course of time restores the gold standard and rebuilds

normal trade balances, then the gold money supply of the world would presumably have its normal influence over prices. This normal influence doubtless would be to cause a gradual decline of prices for the reason that actual production of gold is low. On the other hand, if the huge gold holdings remain in the United States, they are potential bank reserves. They are a constant temptation to build a huge castle of credit. The potential inflation is a thing dreaded and feared by all classes and interests. The abnormal gold of the United States is a menace to price stability.

America's increase was Europe's loss. But this loss can be understood only by distinguishing between gold in circulation and gold in central bank reserves. Prior to 1913, three-fifths of Europe's gold was in circulation, and two-fifths in reserves of the Central Banks. After the war, no gold was left in circulation. All of it had been impounded in central reserves. This change is shown in the following table:

GOLD HOLDINGS OF EUROPE AND THE UNITED STATES
(in millions of dollars)

	1913	1922	Increase	Decrease
Europe				
Central reserves	\$3,119	\$3,034		\$ 85
Circulation	1,834	....		1,834
Total	\$4,953	\$3,034		\$1,919
United States				
Central reserves	\$1,524	\$3,504	\$1,980	
Circulation	381	429	48	
Total	\$1,905	\$3,933	\$2,028	
Grand Total	\$6,858	\$6,967	\$109	

From this table, it is clear that Europe's export of gold to the United States came almost entirely from gold in circulation. Her central reserves were practically the same in 1922 as in 1913. *Hence, the increase in the gold holdings of the United States is roughly equivalent to the gold withdrawn from circulation in Europe.* The total loss of gold from circulation in Europe is a new fact to be reckoned with in considering the future demand for gold. Since three-fifths of Europe's former demand for gold money was for circulation and since this use of gold has now entirely disappeared, it would seem that a new gold habit had been formed which would decidedly lessen the demand for gold in the future. If this lessened demand for gold proves to be permanent, it must tend for a time to offset the lessened annual production of gold already noted.

To summarize the new conditions governing the relation of gold supply to price trend, we have, *first, a lessened annual production of gold in the current decade; second, a redistribution of gold between nations, with the United States holding the lion's share; third, a new balance as between gold for reserves and gold for circulation, the latter being practically zero in post-war Europe, and fourth, the uncertainties about the return to the gold standard by many of the countries of Europe.* In the midst of these uncertainties and abnormalities, the price levels of the various countries cannot be understood by confining attention to gold supply alone. They can be understood only by giving attention equally to the quantities of paper money and bank credits in use. The supply of non-gold money is of fundamental importance under the extraordinary post-war conditions. Later paragraphs of this chapter deal with price levels as governed by these extraordinary conditions.

The Cyclical Movement of Prices.—The chart of general purchasing power of money based upon wholesale prices, wages, cost of living, and rents, shows no clear cyclical movement. Wholesale prices taken by themselves show a moderate cyclical fluctuation. And certain sensitive commodities at wholesale show a very decided cyclical fluctuation. The balance between individual prices undergoes serious disturbance at various stages of the business cycle. Prices of stocks rise early in prosperity and fall early in depression. Wholesale prices fluctuate early in each stage of the business cycle, but vary sharply from commodity to commodity. Retail prices, wages, and rents lag behind stock prices and wholesale prices. The unequal rates of rise and fall of different classes of prices and of different commodity prices cause far-reaching maladjustment in the whole fabric of business. These price disturbances in the business cycle are given more detailed treatment in the chapter dealing with the business cycle.

The Price Movements of the World War Period.—The decade centering about the World War and bounded roughly by the years 1913 to 1923, stands out in money history as a period of extraordinary importance. The price fluctuations of the period were more extreme and more spectacular than had ever occurred before. The classic money fallacies were illustrated at their worst. The legacy of evil influences handed on to future decades was tremendous. The devastating effect of bad money upon production of goods for human use was felt in extreme forms. The abnormal forces generated by the war are bound to prolong their influence for many years to come.

In all countries the war generated a severe price inflation, but the most drastic inflation actually came in the years after the armistice was signed. The year 1920 was for most countries a turning point from inflation to deflation. The war itself is associated with inflation. The war started inflation, and the legacy of the war continued inflation into the post-war period. From whatever angle the price movements of the extraordinary decade 1913 to 1923 be viewed, all points of view lead back to the center and starting point, the inflation of the World War.

What feature was there in the war which everywhere exerted this inflationary influence? To this question the answer is clear and definite. The power behind inflation was the imperative need of the governments for funds wherewith immediately to carry on the war. When war is declared, time is everything. Governments cannot wait to raise extra taxes or to raise extra public loans. Not only can governments not wait, but they cannot hazard the conduct of war by depending upon the uncertainties of public loans and the unpopularity of drastic taxes. The crying need in war is for government spending power here and now. The means of meeting this need which universally appealed to governments *in the World War was to issue new notes or to create new deposits at the banks*. More currency and more credit enabled the governments immediately to buy munitions, to equip soldiers, to finance the war generally. Not that this was their whole reliance, or even at the time their main reliance. They raised taxes. They solicited loans from the people. But taxes and public loans were not enough. Expansion of note issue and of bank credit made up the rest. Consequently, money policy became simply an adjunct of fiscal policy. Note issue became the tool of the raisers of revenue. Bank policy became subservient to the balancing of budgets. Everything was subordinated to the meeting of public deficits.

The methods of inflation showed certain variations from country to country, but in the main they ran true to certain standard forms. The two main forms were increased note issue and increased bank credits. The increased note issue may be brought about either by the direct printing of legal tender notes by the government or by indirect printing by the central banks acting under direction of the government. But whether the issue be direct or indirect, the consequence is the same, for both alike swell the active currency in circulation, both alike create extra buying power in the hands of the government, and both alike lead to inflationary price movements. The second main form of inflation, increased bank credits, may be brought about by government borrowings from the banks, through the creation of deposits subject to check in favor of the government. These extra bank balances place fresh buying power in the hands of the government and lead to inflationary price movements. Whatever the method of inflation, the process means additional units of purchasing power in circulation. The over-supply of these units means less buying power per unit, or, what comes to the same thing, a definite increase of prices. The methods of government financing, it must be emphasized, are not aimed deliberately at causing inflation. They are aimed at raising the government revenue necessary for prosecuting war. *But whatever their aim, their consequence so far as money and prices are concerned is depreciation of the money unit and rise of the price level.*

During the war, the leading cause of inflation was government fiscal necessity, and the leading methods were increased note issue and increased bank credits at the disposal of governments. Another influence

was however at all times present, and with special vigor after the war. This influence was private business. Private business goes to the banks to borrow the purchasing power wherewith to command capital. If the rate of interest is too low, too much purchasing power of this kind is borrowed. In other words, if bank credit is too cheap, too much of it will be demanded by business men. This excessive private borrowing was possible during and after the war because interest rates were too low. The extra medium of exchange had the same effect as the extra bank credits placed at the disposal of governments. It depreciated the value of the money unit and inflated the price level. Private demand, when unchecked by adequate interest rates, leads to inflation during peace as well as war, just as surely as does government demand, when unchecked by sound principles of budgeting and of public finance. In so far as *private or government* demand for greater command over capital leads to excessive note issue or bank credit, the outcome is inflation.

Mixed up with the general movement of inflation was the fallacious notion that gold must be strictly hoarded in bank reserves. Early in the war nearly all countries abolished the free convertibility of paper notes into gold, prohibited free gold markets, and for all practical purposes thereby abandoned the gold standard. Most countries tried to hoard an imposing amount of gold in their central banks, on the assumption that the sight of gold reserves would inspire the confidence of the public. But inasmuch as this gold was absolutely unavailable because redemption of paper money in gold was abolished, it ceased to do the work of gold in most important ways. It ceased to check the issue of notes and credit to excess, and became an idle mass of useless wealth. The notion that gold exists to be used in active redemption of credit currency was abandoned, in favor of the notion that gold exists to be hoarded in idle heaps for the rapt gaze of an awe-inspired public in time of emergency. The quick declaration of inconvertibility was a grave and irreparable monetary mistake.

Why did inconvertible paper money depreciate in value? The answer to this question is mainly that the supply of such money was excessive. We must, it is true, concede that the degree of confidence in ultimate redemption affects the value of paper money, but this confidence chiefly depends upon how excessive is the supply of paper money put into circulation. In other words, *the chief force undermining confidence in ultimate convertibility is too great an issue of fiat paper*. The fact which was not admitted by governments early in the period of inflation but which in the course of time was demonstrated to everybody's sorrow is simply that the value of a pure paper currency is chiefly controlled by its scarcity. As issue after issue of fiat paper was poured into circulation in European countries, the value of each paper mark, or franc, or kronen became less and less. There was no check upon excess issue except the arbitrary will of governments. The old automatic check of gold convertibility had been abandoned. The new check of political

policy was ineffective. Over-issue resulted everywhere, and over-issue led inevitably to inflation. The value of paper money depreciated because its scarcity was not adequately controlled.

Inflation and Deflation in the United States Since 1913.—The United States differed from other countries in that her inflation due to the war was gold inflation whereas theirs was paper inflation. The United States adhered to convertibility of notes into gold. This was at all times a drastic check upon over-issue of notes and over-expansion of bank credit. It was not a perfect check. It was not an adequate check. It was not a check which prevented inflation. But the inflation which came in the gold standard United States was less severe and less disastrous than the inflation which came in the paper standard countries of the world. Gold inflation was bad enough, but paper inflation at its mildest was worse and at its severest was infinitely worse.

The reasons why the check of gold convertibility did not prevent inflation altogether in the United States were threefold. First, gold was withdrawn from circulation as much as possible and concentrated in the reserves of the banks as a basis for credit and note expansion. Second, gold was imported from European countries, in payment for the heavy shipments of war and post-war goods which they were buying from the United States. Both movements served to swell the gold reserves as they had never been swollen before. Third, the ratio of gold reserves to credit was made thinner than ever before. The reserve ratios required of national banks in central reserve cities had been 25 per cent of all deposits, in reserve cities 25 per cent, in other cities and towns 15 per cent. The new reserves against demand deposits in banks in these three classes of cities were 13, 10, and 7 per cent, respectively. The reserves against time deposits were 3 per cent for all cities alike. The threefold forces worked strongly in the direction of gold inflation. The banks were flooded with greater supplies of gold than ever before, and each dollar of gold would support more dollars of credit than ever before. The foundation for gold inflation was firmly laid in these underlying changes.

The actual price history of the United States from 1913 to 1923 is shown in the following index of wholesale prices as compiled by the Bureau of Labor Statistics. The monthly indexes for 1920 are given because that year marked the turning point from rising prices to falling prices, from inflation to deflation.

INDEX OF WHOLESALE PRICES IN THE UNITED STATES
(U. S. Bureau of Labor Statistics, 1913 = 100)

Year		
1913	.....	100
1914	.....	98
1915	.....	101
1916	.....	127
1917	.....	177
1918	.....	194

}

Inflation before the United States entered the war.

Inflation during the war.

1919	206	} Inflation after the war.
1920 (average)	226	
January	233	
February	232	
March	234	
April	245	} Deflation.
May	247	
June	243	
July	241	
August	231	
September	226	} Post-war price levels as compared with pre-war as 100.
October	211	
November	196	
December	179	
1921	147	
1922	149	}
1923	154	

From this table it is apparent that the rise of prices started before the United States entered the war, accelerated while she was in the war, and reached a climax two and one-half years after the war. The turning point from rising to falling prices was reached in the middle of 1920. By 1921 the price level was down to 147 as compared with 247 in May of 1920 and with 100 in 1913. Following 1921, the price index fluctuated moderately above and below a point about 50 per cent above the pre-war level.

The close relationship between the inflation which culminated in 1920 and the expansion of notes and bank credits is indicated by the following table:

INFLATION IN THE UNITED STATES,* 1913-1920

Year	Price Index, Bureau of Labor Statistics	Money in Circulation		Bank Deposits		Physical Volume of Business (Index No.)
		(amount in millions)	Index Number	(amount in millions)	Index Number	
1913	100	\$3,390	100	\$12,678	100	100
1914	98	3,505	103	13,430	106	99
1915	101	3,682	109	14,411	114	104
1916	127	4,159	123	17,840	141	109
1917	177	4,914	145	21,273	168	112
1918	194	5,579	165	23,771	188	113
1919	206	5,793	171	27,928	220	106
1920	226	6,060	178	30,300	239	111

* See E. W. Kemmerer, *High Prices and Deflation*, pp. 7, 12, 27, and George R. Davies, *Introduction to Economic Statistics*, pp. 88, 90, 99.

To summarize the inflation from 1913 to 1920, we find that during these seven years the physical volume of business increased approximately 11 per cent, the monetary circulation 78 per cent, bank deposits

139 per cent, and the wholesale price level 126 per cent. The striking fact is that in the midst of the many abnormalities of the period, the price level corresponded roughly and approximately to changes in the volume of money and credit. *The rise in prices was made possible by the rise in the quantity of media of exchange.*

WHOLESALE PRICES COMPARED WITH NOTES IN CIRCULATION IN VARIOUS COUNTRIES FOLLOWING 1913 *

Year	United Kingdom		France		Italy	
	Price Index (Statist)	Bank of England Notes and Currency Notes (000,000's omitted)	Price Index (Statistique Générale)	Bank Notes (000,000's omitted)	Price Index (Bachi)	Bank Notes and State Notes (000,000's omitted)
		pounds		francs		lire
1913	100	30	100	5,714	100	2,783
1914	100	75	102	10,043	95	3,593
1915	127	138	140	13,310	133	5,050
1916	160	190	188	16,679	202	6,329
1917	206	259	262	22,337	299	10,173
1918	226	393	339	31,055	410	13,874
1919	242	444	356	37,275	364	18,551
1920	295	481	510	37,444	631	22,000
1921	182	433	345	36,488	578	21,476
1922	154	405	327	36,359	562	20,279
1923	153	405	419	37,905	575	19,675
1924	160	394	465	39,665	566	18,944
	(July)	(July)	(July)	(July)	(July)	(April)

* Compiled from *Memorandum on Currency, 1913-1923*, issued by the League of Nations; from the *London Economist*, Monthly Supplement; and from *European Currency and Finance*, Commission of Gold and Silver Inquiry, United States Senate, 1925.

The causes of the deflation which began in 1920 were closely interwoven with the causes which bring about crisis and depression in any business cycle. The general nature of these causes is discussed separately in the chapter dealing with business cycles. This particular period of deflation was, however, sharply aggravated by the extraordinary inheritance of war-time influences which was carried over into the years 1919 and 1920. The deflation of 1920 was due to the forces of the business cycle plus the left-over forces of the war. These forces were international as well as domestic. An abnormal export demand for American products had been sustained after the war by the reckless extension of credit to European buyers. An abnormal domestic demand for goods had been stimulated by a wave of extravagance and speculation when

men were released from active service in the Army and Navy and when the psychological reaction from war-time thrift had a chance to assert itself. This abnormal foreign and domestic demand was supported by a great expansion of bank credits. The credit strain led to advances in Federal Reserve discount rates in December, 1919, and further advances during 1920. Rising interest rates acted as a check upon abnormal market demand. Large accumulated stocks of goods had to be thrown upon the markets, producing a general commodity liquidation. Orders both at home and abroad were cancelled on a tremendous scale. Production declined, markets were disorganized, and prices fell from 247 in May, 1920, to an average of 147 for the year 1921. The deflation was the inevitable reaction from the war-time and cyclical inflation.

WHOLESALE PRICES COMPARED WITH NOTES IN CIRCULATION IN VARIOUS COUNTRIES FOLLOWING 1913 (*Cont.*)

Year	Japan		Russia *
	Price Index (Bank of Japan)	Bank Notes (000,000's omitted)	State Notes (000,000's omitted)
		yen	rubles
1913	100	426	2,000
1914	96	360	
1915	97	396	
1916	117	611	
1917	148	824	
1918	196	1,091	57,000
1919	236	1,460	
1920	259	1,311	
1921	200	1,547	17,540,000
1922	196	1,590	2,138,710,000
1923	199	1,697	178,509,900,000
1924	205 (May)	1,287 (May)	768,000,000,000 (March)

* Reliable price indexes for Russia throughout this period are not available, and indexes for this country are therefore omitted. Price inflation, however, is known to have been extreme, having been exceeded only by that of Germany.

World Inflation and Deflation Since 1913.—The price movements of various leading countries are traced in the following table. Side by side with the price movements are traced the fluctuations of notes in circulation. Note issues are not a perfect measure of the rate of change in bank deposits, but in a rough and general way, they do reflect the changes in such deposits and in the total medium of exchange. Comparisons of price and money movements are here made not for the sake of proving an exact and precise correspondence between the two but for

the sake of showing the general and fundamental correspondence. The table makes clear the fact that the great war and post-war inflation was made possible by the great increase of the supply of money. This money was fiat money, inconvertible and irredeemable in gold. Interwoven with the increase in paper notes was a corresponding increase in bank credits. Each fresh expansion of notes and credits raised prices. Each rise of prices called for more notes and credits with which to do business. A vicious spiral of inflation was the result. Each rise of prices called for more money issue. Each rise of money issue called forth a further rise in prices.

WHOLESALE PRICES COMPARED WITH NOTES IN CIRCULATION IN VARIOUS COUNTRIES FOLLOWING 1913 (*Cont.*)

Year	Germany	
	Price Index	Total Currency in Circulation
	(Reichsamt Indexes)	(000,000's omitted) marks
1913	100	6,070
1914	125	7,045
1915	148	8,916
1916	151	10,400
1917	203	14,851
1918	245	22,751
1919	803	41,020
1920	1,440	67,889
1921	3,490	90,791
1922	147,480	352,173
1923	126,160,000,000,000	74,954,802,000,000
1924	131 †	1,520,511,000,000,000 *
		1,911 †

* September, 1924.

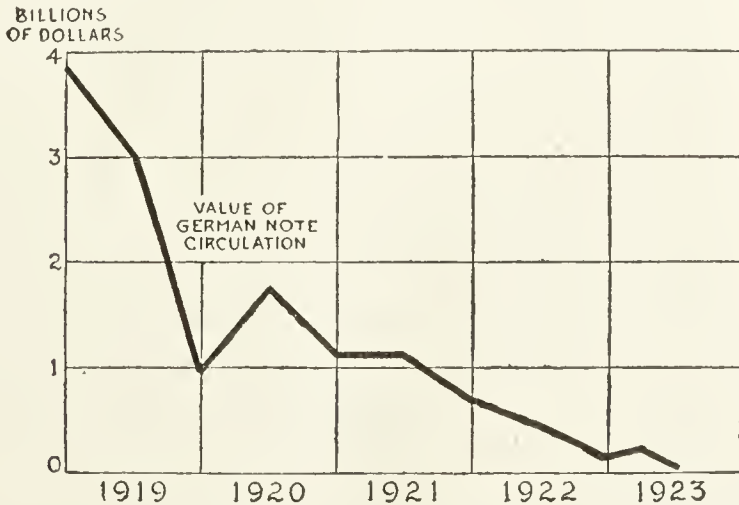
† Reichsmarks in December, 1924. One reichsmark equals one trillion old paper marks.

These estimates show that English, French, and Italian prices rose more severely than United States prices in 1920 and failed to fall to the same level as those of the United States after 1920. The worst disasters of inflation occurred in Russia and Germany. In these countries inflation became steadily more and more disastrous after 1920. Not until 1923 and 1924 did these countries curb their issues of fiat paper, and reconstruct their currency systems. The reconstruction in each case was some form of return to gold backing as a check upon the issue of paper money.

The early stages of inflation were very mild in comparison with the

later stages. During a single year, ending early in 1923, the world's note circulation outside of Russia increased ten times. In a single year Austria's note circulation increased seventeen times, Germany's thirty-five times, and Russia's forty times. At one period, Germany doubled her note circulation in a single week. This rapid rate of inflation destroyed the last shreds of public confidence in the paper marks, rubles, and kronen. The events of the period brought out clearly that the rate of inflation has a great deal to do with the consequences of inflation. Slow inflation may work injury, but it can be endured and coped with. Swift inflation works disaster, and can neither be endured nor coped with.

VALUE IN DOLLARS AT CURRENT RATES OF EXCHANGE OF THE TOTAL AMOUNT OF GERMAN PAPER MARKS IN CIRCULATION



It is possible to measure the evil that flows from rapid inflation by determining the total purchasing value of the currency as a whole from period to period. In the early stages of inflation, the value of each unit of paper money depreciates, but only in approximate proportion to the number of new units issued. In the later stages, the value of each unit of paper money falls much faster than the number of units increases. In the final stages of the process, the purchasing power of each unit becomes almost infinitesimal, and the purchasing power of the whole currency becomes too small to handle the business of the country. In January, 1919, the dollar value of the total mark circulation at the current rate of exchange was about \$4,000,000,000 but by the end of 1923 the dollar value of the total mark circulation was less than \$100,000,000. In the latter year sextillions of marks were in circulation, but the purchasing power of each mark had fallen so much faster than the supply of marks from the printing presses had risen that the total value of the currency shrank to insignificant size. A note

circulation worth less than \$100,000,000 was utterly inadequate to carry on the business of the German nation. The decline in the value in dollars of the total circulation of marks is shown in the diagram on page 549.¹⁶

Under similar influences, the value of the total circulation of paper rubles in Russia fell to a low point of less than \$20,000,000 in 1922. Austria, Hungary, and other nations met the same financial fate. Inflation could not go on endlessly. It came to a point where it defeated itself. This point was one of diminishing returns. Additional increments of paper money yielded less total purchasing power than the currency of the country possessed in the first place. If France, England, and various other countries of Europe failed to reach this final stage of inflation, it was solely because they called a halt to their note issues before it was too late. They stopped issuing additional paper notes, and this self-restraint alone averted the complete money collapse which eventuated in Russia, Germany, and other countries.

The financial collapse brought untold social suffering in Germany and Russia, but these human costs need not be discussed at this point. It is sufficient here to make clear that *as a source of government revenue*, inflation eventually dissipated itself. From the first we have stressed the fact that war inflation was a means of raising purchasing power for the governments. The new money eventually failed even of this fiscal purpose. For example, when during a single week in Germany quintillions of marks were issued and the total number of marks was doubled, the revenue so raised was equivalent to only \$15,000,000. When doubling the money circulation would yield only this meager amount of revenue, the last bitter drops had been drained from the revenue possibilities of inflation. Ultimately, inflation collapsed as a revenue measure. In addition to all its other havoc, inflation finally failed utterly even as a form of fiscal policy.

The reaction from inflation did not occur at the same time or in the same degree in different countries. One group of countries, consisting of England and of the European neutral countries, began a genuine process of deflation in 1920. They contracted their currency issues, and experienced a positive fall in prices. This fall did not, however, bring prices down to the level reached by the United States. The first return to gold convertibility by any European country occurred April 1, 1924, when the Swedish Riksbank resumed redemption of its notes in gold. Great Britain returned to the gold standard at pre-war parity in May, 1925. Her return was accompanied by similar action by Australia, New Zealand, the Netherlands, the Dutch East Indies, and South Africa. A second group of countries is illustrated by France and Italy. In 1920 and 1921, these countries arrested the expansion of their currencies, and brought about a mild recession of prices. However, their price levels remained from 400 to 600 per cent above the pre-war point. If such countries were to return to gold convertibility, they would be

¹⁶ From data of the Federal Reserve Bank of New York.

obliged to do so at new rates of conversion whereby several paper francs or lira would be exchangeable for one pre-war gold unit.

A third group of countries includes such extreme examples of inflation as Germany, Austria, Hungary, and Russia. Austria and Hungary were salvaged by the aid of the League of Nations. Under the auspices of the League, a loan of \$125,000,000 was raised from outside countries for Austria and a loan of \$50,000,000 for Hungary. These loans served to cover deficits until budgets could be balanced, and to strengthen bank reserves. Balancing of budgets was further facilitated by sharp cutting of government expenditures and by increasing taxes. New banks of issue were created, independent of the governments of these countries, and endowed with sole powers of note issue. Foreign exchanges and internal price levels were stabilized by proper limitation of the quantity of note issue. An impartial commissioner from the outside was brought in to supervise the whole plan of financial reconstruction. By balancing the budgets and stabilizing the currencies of these countries, the League plan restored a more normal activity in business and a fair degree of prosperity in both foreign and domestic trade.

Germany, after preliminary attempts at financial reconstruction, finally adopted in 1924 substantially the policies which were formulated by the Dawes Commission. A loan of 800,000,000 gold marks was floated abroad. This fund aided in meeting the budgetary deficit until the budget could be properly balanced, and meantime supplied reserves for the central bank. A new central bank was created, the Reichsbank, independent of the government, and endowed with a monopoly of note issue. Borrowing by the Treasury from the central bank, which had been the principal occasion for the issue of paper marks, came to an end. A new money unit, the reichsmark, was adopted, equivalent to one former gold mark, and exchangeable for outstanding fiat marks at the ratio of 1,000,000,000,000 (one trillion) paper marks per new reichsmark. The old paper marks were required to be withdrawn from circulation. The new bank was required to maintain 40 per cent reserves against notes in circulation, in the form of gold and foreign exchange. A substantial part of the reserves was allowed to remain in foreign financial centers, principally London and New York. This form of redemption of note issue in gold or gold exchange on foreign countries amounted substantially to the adoption of the gold exchange standard until such time as the complete gold standard might prove feasible. Stabilization of the currency was the objective, and as in the case of Austria and Hungary, such stabilization was closely interwoven with the balancing of the budget.

Russia chose her individual way of escape from the coils of inflation. Two kinds of notes were allowed in circulation side by side. State notes of limited quantity were issued mainly for hand to hand circulation in retail transactions. They were supplemented by new copper and silver coins. The standard money in domestic business and in foreign trade

was a new unit, the chervonetz, equivalent to ten pre-war gold rubles. In February, 1924, the issue of Soviet paper rubles was prohibited, and outstanding rubles were to be withdrawn from circulation at the ratio of 50,000,000,000 original Soviet rubles per gold ruble. A new State Bank was created, with the power to issue chervonetz notes. The required backing for these notes was 25 per cent gold and gold exchange, and 75 per cent commercial paper. The gold cover, although not at first restoring the full gold standard, nevertheless served as a definite check upon note issue. This check put a stop to inflation, introduced stability into the currency, and laid the foundation for business confidence and expansion of production. Simultaneously, plans were formed for reducing the public deficit and balancing the budget as rapidly as possible.

Certain common features of reconstruction appear in the third group of countries, where inflation worked its severest ravages. First of all, each country had to stop the printing of paper money. No recovery was possible until the printing presses were stopped. Secondly, each country provided some form of gold cover as a means of restricting the future issue of notes. Gold backing was looked upon as the only adequate check upon excessive note issue. This gold backing was looked upon in each case as a preliminary step toward the ultimate restoration of the gold standard. Thirdly, the budget in each case had to balance. Inflation started as a fiscal measure to meet deficits in the budget. Inflation ended by making note issue independent of fiscal policy and by balancing the budget through economy of expenditure and adequacy of taxation.

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CHAPTER XXVII

BANKING PRINCIPLES AND PRACTICE

The Classes of Banking Institutions.—The commercial banks are the most numerous and in many respects the most important of all banking institutions. In the United States, there are in the vicinity of thirty thousand commercial banks in active operation. Their primary activity is the making of short time loans to individuals engaged in some branch of industry or trade. The short time loans supply business with circulating, or working, capital. Although this is the primary work of commercial banks, it is not the only important work. They supply a certain amount of investment credit to business. Recent tendencies have increased the investment services of such banks. A considerable portion of their resources is tied up in long term loans for fixed capital purposes. They buy large quantities of securities.

Four incidental activities of commercial banks may also be mentioned. First, they provide vaults for the safe keeping of important papers, money, or valuables of any sort. Second, many of them perform the functions of a trustee, and act as administrator, executor, registrar, transfer agent, assignee, receiver, or guardian. Third, many of them issue bank notes, under government restrictions, to serve as part of the circulating currency of the country. Fourth, they provide facilities for the care and handling of money. They receive deposits, keep checking accounts, pay out money where due, and deal in drafts and bills of exchange. The tendency has been for commercial banks to broaden their functions, and instead of specializing in purely short time loans, to enter upon the duties of trustees and of investment bankers.

However, when long time loans are involved, the main institutions are investment banks. These banks are specialists in providing fixed capital for modern industry. They take over the bonds and stocks of corporations, and sell them to the investing public. Some of the larger commercial banks have established subsidiary corporations to carry on an investment banking business.

Savings banks and insurance companies gather the relatively small savings of individuals into an aggregate fund which can be invested in safe long time securities. Many commercial banks conduct a savings department.

Trust companies assume the duties of trustee, administrator, executor, receiver, and the like. These duties have become indispensable under the modern régime of corporate property and complex legal restrictions upon the management of property. Many commercial banks incidentally

undertake the functions of trusteeship. Most trust companies do not confine themselves strictly to trusteeship, but branch out into commercial and investment banking.

Miscellaneous forms of financial agencies include Morris plan banks for the provision of consumer's loans or small producer's loans, mortgage companies, discount and finance companies, commercial paper houses, note brokers, building and loan associations, and coöperative credit societies. Since commercial banking is of pivotal importance, we shall limit our discussion for the most part to that particular form of financial institution. The other forms are important, but it is impossible on account of space limitations to treat separately each type of institution.

The Function of Commercial Banking.—Commercial banking is a form of productive enterprise. To any one who looks beyond the mere making of loans or handling of deposits, it must be obvious that the final outcome of all technical banking detail must be a broad productive function. The test of the effectiveness of banking institutions is whether industries produce. If factories are idle, if plant is being used at a fraction of capacity, if goods and services are not being marketed continuously at full capacity, then banking to that extent has failed of its purpose. Other things may have failed also, but above all, banking has failed. Banks have over-financed here and under-financed there. They have failed to serve fully and adequately the economic purpose for which, in the interest of the community, they are intended.

The banks influence production in three main ways: *by the judicious selection of the persons to whom money will be loaned; by controlling the total of all loans in such a way as will avert inflation or deflation of prices; by charging an interest rate which reflects the true scarcity of and demand for capital.*

By the use of the first method, banks divert the control of capital to the hands of those most capable of making a profit from its use and employment. All sorts of people come to the banks for loans. Some are deserving, others are not. One borrower can take his loan out of the bank, engage in business successfully, earn a profit, and pay off his debt at maturity. Another borrower can take the same amount of credit, bungle the use of it, lose his investment, and default on the debt at maturity. The commercial banks attempt to place loans in the hands of those producers who are most competent to use them for a productive purpose. To the extent that the banks use sound discrimination, they tend to further production by placing purchasing power in the hands of the most effective producers.

With regard to the second method, banks as a class are seriously concerned with the grand total of their credit extensions. The grand total of all loans has a powerful influence upon the price level. As previous chapters have shown, a relatively steady price level is indispensable to sustained production. Inflation and deflation destroy the steady continuity of full time production. The total of bank credit

is of vital importance because through its effect upon price fluctuations it dominates the course of production.

The third method is of coördinate importance as the bank rate of interest vitally affects the course of production for good or for ill. The bank rate should reflect the true scarcity of savings of capital and the true demand for capital. A high rate of interest may be used to check the expansion of money and the inflation of prices, and at the same time to check the over-expansion of production. A low rate of interest may be used to resist deflation and to stimulate the expansion of production. The interest rate is a most important regulator of business activity.

These three tests of the effect of banking upon production serve to emphasize the fact that banks exist for a purpose outside themselves. They are auxiliaries and servants of the main productive currents of economic life. Banking must face broad economic tests, in order to find an economic justification for its existence.

Instruments of Bank Credit.—Credit instruments may be classified under two headings: *orders to pay* and *promises to pay*. Orders to pay are bills of exchange, drafts, checks, and acceptances. Such instruments are orders by one party on a second to pay to a third, or to the first party himself, a certain sum of money. A orders B to pay C, or under certain circumstances to pay A himself, the stated sum. The person to whom money is owed makes out the order and is the “drawer.” The person who owes money and on whom the draft is drawn is the “drawee.” A draft is synonymous with a bill of exchange. An acceptance is a draft or bill drawn on a person who owes money, and by him accepted by writing the word “Accepted” across its face and placing underneath his signature. The acceptance is in form an order to pay, but when accepted, becomes the acceptor’s promise to pay. It is then as binding on him as a promissory note. A check is a special form of order to pay, in which the drawer orders his bank to pay out of his own deposit account with the bank a stated sum, either to another named party, or to bearer, or to himself, as the case may be. Drafts, bills, checks, acceptances are alike *orders to pay*.

The type form of *promise to pay* is the promissory note. Such promises form a very important part of the total credit used in modern business. An acceptance becomes in effect a promise to pay when the drawee writes “Accepted” across the face of the instrument. The promise to pay is a contract, enforceable at law, and the fact that such contracts are binding underlies much of the confidence which is indispensable to business transactions on a credit basis.

Bank Activities: Discount, Deposit, and Issue.—Banking serves the needs of commerce and business by three major types of operations, which may be classified as *discount, deposit, and issue*.

(1) *Deposit*. The popular conception often seems to be that a bank is merely a place to put money for safe keeping, perhaps also to draw a small rate of interest. This phase of banking is often the main phase in the eyes of the individual who maintains a small deposit and checking

account. It is true that banks solicit deposits of money and are very anxious to have such deposits as large as possible. But in the aggregate, all deposits of actual money are only a fraction of total bank deposits. Bank deposits are several times as great as all the actual money in the country. There must be some outside source of deposits much more important than the mere deposits of money itself.

This outside source is the creation of loans and discounts by the banks themselves. Banks make extensions of credit to borrowers, and these borrowers in turn redeposit the credits with the banks. "The naïve idea that a bank deposit normally originates by the bank's customer making a deposit of cash in the bank does not reveal the substance of the situation in countries like the United States, with a highly developed system of bank credit and its utilization through the form of the deposit account. The most usual form in which bank deposits originate is by borrowers going to a bank to seek accommodation and offering their notes for discount, the bank making the loan sought by the customer by opening a credit or 'deposit' on its books in the borrower's favor. Normally, therefore, what are called deposits, increase as loans and discounts do; in other words, as borrowings from banks increase."¹

In the course of the day's business, the merchant receives in payment for his goods and services a mass of checks, drafts, and other credit instruments, as well as actual money. Scores and hundreds of checks and other credit instruments pour in, drawn on a widely scattered list of banks and individuals. The merchant takes them all to his own bank for deposit, and the bank considers them "cash items" of deposit. "Cash items" clearly are not actual money. *They are simply rights to demand actual money from the various banks on which they are drawn.* The bank which receives the cash items of the merchant proceeds to collect payment from all other banks.

But in the process of collection, the bank finds that other banks are intending to collect similar items from its funds. The merchant, for instance, has drawn checks on his bank, payable to scattered dealers in other cities, and these dealers will deposit such checks with their respective banks. These various banks will in turn collect such cash items from the merchant's bank. In other words, cash items constitute two streams of payments. One stream is collections by bank No. 1 from all other banks. The other stream is collections by all other banks from bank No. 1. The greater part of cash claims in favor of the bank will be offset by cash claims against the bank. The claims for and against each bank are largely cancelled or *cleared*, without the give and take of actual cash. Cash items are, then, deposits of rights to other people's cash, but since these rights are cancelled by counter rights to cash by other people, only a small amount of cash is moved.

Deposits, therefore, arise in three main ways: actual money savings; loans and discounts left with the bank; and cash items. The bulk of the deposits arise in the second and third ways. Both of these sources are

¹ *Federal Reserve Bulletin*, September 1, 1919, p. 815.

tracable ultimately to the amount of credit extended by the bank. *Bank deposits are created by the banks themselves, through the process of loans and discounts.*

The use of deposit accounts is a matter of business convenience. When the individual or corporation carries a deposit at the bank, the fund may be used to meet a wide variety of bills and expenses in the business. The bulk of payments may be met by checks and drafts drawn on the depositor's bank account. But at the same time, the business man has payments owing to him. He receives their checks and drafts, and deposits them at the bank to be collected and put to his account. The bank keeps a record of the outgoing and incoming payments. At certain intervals, the bank supplies statements of the amounts of each, and of the balance still on deposit. The process of accounting balances the two records of expenditures and receipts, and affords proper facilities for the settlement of an enormous number of transactions.

The banker bears a heavy burden of expense in rendering this service. The deposits as such yield him no gain. Their management and supervision are purely a cost, and if interest is paid to depositors, that payment increases the cost. Why, then, should the banker be so anxious to secure deposits? The only reason is, that deposits make possible further loans by the bank. Deposits are but a stepping stone to loans. The loans are the thing. On them the bank receives interest. From them the bank receives income. Through them, the bank has hope of defraying expenses and making profit.

(2) *Loans and Discounts.* In loans, interest is added to the principal at maturity. In discounts, interest is deducted from the principal in advance. "Loans and discounts" group together the total extensions of credit to commercial borrowers.

The borrower has new purchasing power at his disposal. Ordinarily the borrower will deposit this purchasing power in the bank, and check it out as he needs it. *The purpose of the borrowing was to create a deposit account on which checks and drafts could be drawn.*

If the Standard Oil Company of New York borrows \$1,000,000 from the National City Bank, deposits the amount to its account, and proceeds to draw checks and drafts for the bulk of the sum, the deposit will be quickly cut down to a fraction of the original amount. The deposit exists to be used, and the only way to use it is to pay bills and expenses by drawing checks on it. But this using up of deposits is a danger to the bank, since it drains the bank of cash. Unless this drawing out of deposits by the Standard Oil Company is offset by new deposits in the National City Bank by other customers, or by the Standard Oil itself, the bank will be in a precarious position. Everything going out and nothing coming in would quickly exhaust cash and ruin the bank. *The soundness of banking depends upon making sure that for all deposits drawn out, other deposits will be coming in.*

Not one customer but hundreds or thousands are involved. Some are drawing out large sums while others are depositing large sums. The

average outgo of funds will just about equal the average intake of fresh deposits. As fast as one deposit account is worn down, some other deposit account is built up. The loss of funds on account of checks cashed will be made up by the gain of funds on account of new deposits. Debits to individual accounts must be offset by new deposits to individual accounts.

The come and go of deposits is a common routine of banking. The bank may be compared with a gigantic reservoir. Two great pipes of intake and outflow are connected. By arranging that on the average the intake of new deposits shall be about equal to the outflow from old deposits, the level of the contents of the reservoir can be maintained. Loans without deposits would drain the reservoir. Deposits without loans would be a stagnant burden of expense, earning nothing for the bank. Deposits and loans go together. Loans are unsafe without deposits. Deposits are impossible except to a limited extent without loans.

(3) *Note Issue.* A certain percentage of all payments involve the use of currency, either specie or paper money. The proportion of total payments made in this manner varies somewhat from country to country. For instance, in England and the United States, probably less than one-tenth of all payments require currency itself, whereas in France probably more than one-half of all payments require currency. Since the World War, gold coin has practically disappeared from circulation. Subsidiary coin and paper notes constitute the active circulation.

Notes may be issued either by governments or by banks. Government issue usually has been due to the desire of the government to secure revenue for some emergency. The emergency of war commonly results in government issue, and tends to lead to fiat money and inflation. The Greenbacks are government notes issued in the United States during the Civil War. The drawback with government issue has always been that the criterion has been *fiscal* need rather than *business* need for money. The government issue does not expand in proportion to the requirement of business for a larger volume of medium of exchange, nor does it contract in proportion to the contraction of business. The government issue expands primarily with reference to the desire of the treasuries to get revenue without taxation. The government issue rarely, if ever, contracts. Consequently, under normal conditions, note issue is best left to banks. However, bank note issue is not left wholly to the private judgment of bankers, but is placed under some degree of government regulation. The notes issued by banks have general acceptability in the community, and perform all the work of gold money itself. They are commonly backed by some commodity or asset. *The significance of the backing is that it places some limit upon the quantity of notes that can be issued.*

By virtue of the combined activities of discount, deposit, and issue, banks provide a medium of exchange for business, and contribute to the ability of business to produce goods for the use of the community.

Banking in the United States before the Civil War.—Prior to the Civil War, the national government failed to exercise any direct supervision of the banks of the country. There grew up in each state numerous banks which were subject only to such loose supervision as the state governments wished to give. In a large part of the country, such supervision was hopelessly inadequate. Banks issued notes freely, with scant regard for ability to redeem the notes. Masses of notes remained in circulation even after the issuing banks had failed, because people had no way of knowing the fate of the issuing banks. Counterfeit notes flooded the country, and became a source of widespread loss. Notes passed at par in some communities and below par in other communities. There was no even standard of value. Note issue was chaotic. It was *unsafe* and it was *non-uniform*.

When the Civil War occurred, the federal government believed that a system of national banks could be made to provide a market for bonds to finance the war. Moreover, it hoped to combine with this advantage the gain that would come from a reformed bank note currency throughout the country. Accordingly, the National Banking Act was passed in 1863. The state banks were reluctant to join the national system until, in 1865, the law was amended to impose a tax of 10 per cent on all future notes issued by other than national banks. This prohibitive tax brought the leading banks rapidly into the system and insured the support of the new law.

The expected market for bonds did not materialize, but from a currency standpoint, the new law was an undoubted success. It aimed to put *safety and uniformity* into the note circulation of the country, and these two qualities were possessed in ideal degree by the national bank notes. National banks were required to buy designated government bonds, up to a certain percentage of their capital. These bonds were acceptable as backing for notes issued under the name of the national banks. The establishment of an exclusive bond secured note issue, regulated by the federal government, and circulating uniformly at par in all parts of the United States, was a great piece of financial reconstruction.

Banking in the United States from the Civil War to 1913.—In the course of time, certain shortcomings of the national banks made themselves felt. The shortcomings were twofold. On the one hand, the bank notes were *inelastic*, and did not readily expand and contract in accord with the needs of trade. On the other hand, bank reserves were not controlled by any central authority and therefore could not be adequately *mobilized* in time of emergency. The occurrence of severe panics in the '80's and '90's, culminating in the disastrous panic of 1907, aroused the country to action, and led to the passage of the Federal Reserve Act. It is important to examine briefly the two major defects of the old national law.

The inelasticity of national bank notes embarrassed the country both

because of the stress at certain stages of the business cycle and because of the stress at certain months of the year. Inelasticity was both *cyclical* and *seasonal*. When a state of advanced prosperity was reached, the banks faced a need for more currency, and when a financial crisis approached the banks needed emergency currency in order to avert outright panic. After the strain had passed and business had contracted, the banks needed to be in a position where they could contract currency proportionately. This was the cyclical need for elasticity, but there was another important need, the seasonal. The farmers in the fall of the year required abnormally large amounts of currency in order to finance the harvesting and marketing of crops. When this demand appeared each year, currency had to be shipped from the East to the West, at cost, bother, and delay. Under the seasonal scarcity of funds, interest rates fluctuated abnormally. There was a pressing need for seasonal elasticity of the currency.

There were several reasons why the national bank notes failed to provide elasticity of either kind. The maximum note issue against bond backing was not to exceed the par value of the latter, and if market value was less than par, then not to exceed market value. The price of government bonds determined whether the banks could make a profit from note issue. When bonds were high, the expense of obtaining the necessary bond-backing became prohibitive. The state of the bond market was the vital factor in determining whether more notes should be issued. At times the bond market was favorable to issue although business was in a state of depression. At other times the bond market prohibited issue, although business was in a state of expansion. The result was often that banks issued notes when business least needed them, and refrained from issue when business most needed them. Notes were said to have a *perverse elasticity* with respect to the needs of business.

If a bank decided to issue notes, considerable delay occurred. It required about forty days for the first application to be filled, and after plates were made about twenty days. At time of panic, the emergency would be a thing of the past before new notes could be rushed into use by the banks.

The volume of note issue was limited by the amount of certain kinds of bonds in existence. If the government paid off its debt, as it did in part between 1880 and 1891, the result was a decrease in the amount of note issue. If the government arbitrarily increased the bonds eligible for note backing, the currency supply would tend to increase. Fiscal policy rather than the needs of commerce and industry determined the volume of notes that could be issued.

When business contracted, bank notes did not contract accordingly. The law limited the amount that could be retired in any one month to \$9,000,000. The red tape and cost of retirement in addition to that of issue made it desirable that notes should be issued only to that amount which could be kept permanently in circulation. Retirement and reissue

would wipe out practically all possibility of profit from note issue. Consequently, note issue was unresponsive to declines in business need for money.

National banks were required to deposit with the Treasurer of the United States a sum of lawful money equal to 5 per cent of their notes outstanding. This fund aided in maintaining the redemption of the notes but it did not aid in giving them elasticity.

Although the defects of note issue were serious, they were not as menacing as the defects of the reserves of the banks. The difficulty with reserves was not that they were too small in volume but that they were too weakly organized and controlled. For reserve purposes, national banks were classified as to location. The ratios of reserves to deposits were as follows:

Banks in Towns, Smaller Cities, and Country Districts.

15 per cent, of which two-fifths or more must be in the bank's own vaults, and three-fifths or less might be in either reserve city banks or central reserve city banks.

Banks in Reserve Cities.

25 per cent, of which one-half or more must be in its own vaults and one-half or less might be in central reserve city banks.

Banks in Central Reserve Cities.

25 per cent, of which all must be carried in its own vaults.

That part of reserves kept in vault constituted a scattered and disorganized mass. In time of stress and strain, some banks had more reserves than were needed in their own vaults and some had less. But each bank jealously guarded its own reserves, and refused to help out other banks which were in difficulty. There was no possibility of mobilizing the scattered reserves for the benefit of those institutions which were threatened with ruin. *Decentralization* was the heart of the reserve problem.

But another part of the reserve suffered from the opposite evil, *extreme centralization*. New York City banks received deposits from the banks of the rest of the country, these deposits counting as legal reserve. About half of all the deposits of New York City banks consisted of such deposits of reserves by outlying banks. In 1912, ten of the leading banks and trust companies of New York City had 15,483 banks on the list of their depositors. The interior banks were anxious to make these deposits in central reserve cities, because they received a small rate of interest, usually about 2 per cent, on the money. If they had held the reserves in their own vaults, they would have earned no interest rate whatsoever. The New York banks used these deposits largely for call loans to finance speculation on the Stock Exchange. In ordinary times, interior banks could recover their deposits by requesting their return from the New York representatives. The New York banks were able to obtain the funds only by calling in the loans to brokers. The called loans might cause temporary flurries in call rates and in

speculative markets, but the evil was not excessive, and did not directly worry the interior bankers at all. But in emergency, interior banks found it impossible to recover their reserve funds. If panic was threatened, it was disastrous to liquidate stocks on the stock market because prices were ruinously low. Hence, the central reserve city banks frequently suspended specie payments at such times. The suspension enabled the New York banks to cling to their own reserve funds, but left the interior banks to save their lives as best they could. The reserve was not available for use at the very time when it was desperately needed. The method of centralization prevented any adequate mobilization of reserves.

In spite of these dangers, the centralization was thought essential by the mass of banks. In addition to the small interest allowed on reserve deposits, there was the inducement of *correspondent* relations between banks. Interior banks needed a correspondent bank in New York for the purpose of making collections and handling exchange. New York banks needed interior correspondents for the same reason. This intricate system of correspondent relations connected all parts of the country, and facilitated the transfer of payments. But this undercurrent of service was more than offset by the inflexibility of reserves during periods of financial emergency.

Numerous other defects appeared in the National Banking system, but the most important of all were the two here discussed,—the inelasticity of note issue, and the inability to mobilize reserves in time of emergency. Largely because of these basic faults, the Federal Reserve Act was adopted in 1913. The new law provided elasticity of note issue through the creation of the Federal Reserve note, and provided mobilization of reserves by placing their control in the hands of Federal Reserve banks and of the Federal Reserve Board.

The Administrative Mechanism of the Federal Reserve System.—At the top of the system is the Federal Reserve Board, of eight members. Six are appointed by the President with Senate approval, and are to be selected with a view to giving fair representation to agriculture, industry, finance, and other phases of economic life. The other two are the Secretary of the Treasury and the Comptroller of the Currency, who are members *ex officio*. The term of office of the six regular members is ten years.

Under the Federal Reserve system, the country is divided into twelve districts, each district containing a Federal Reserve bank. Many authorities favored the creation of a central bank for the whole country, modelled after the system in vogue in European countries. This idea was objectionable largely because many were afraid that a great central bank might become a tool of Wall Street or might try to dominate the government. Memory of Andrew Jackson's war with the State Bank acted as a caution in the minds of the law makers. The regional plan promised to diffuse the facilities of banking, and to adapt banking machinery to the great areas to be served in the United States. Accord-

ingly, each of the twelve Federal Reserve banks was made practically a central bank with respect to its own district, but was federated with the other district banks through the coordinating functions of the Federal Reserve Board.

For purposes of dividing the country into sections which would be natural economic units, the following twelve cities were selected as the seats of the Federal Reserve banks:

	District Number		District Number
Boston	1	Chicago	7
New York	2	St. Louis	8
Philadelphia	3	Minneapolis	9
Cleveland	4	Kansas City	10
Richmond	5	Dallas	11
Atlanta	6	San Francisco	12

In addition to the twelve main banks, twenty-three branches have been established as a means of enabling the banks to serve their districts more effectively. Foreign agencies and representatives have also been established, particularly by the Federal Reserve banks of New York and of Boston.

Each Federal Reserve bank is managed by a Board of Directors of nine members, holding office for a three-year term. Three classes of directors are recognized: first, Class A, consisting of one-third of the Board, elected by the member banks of the district as their representatives; second, Class B, consisting of one-third of the Board, likewise elected by the member banks but *representative of commerce, agriculture, and industry*; finally, Class C, consisting of one-third of the Board, and appointed by the Federal Reserve Board in Washington. It should be noted that a majority of the board of directors is chosen by the member banks themselves, whereas only a minority is chosen by the government. The method of election is calculated also to avoid allowing the larger banks in the district to dominate the small banks. The effect has been to create *bankers' banks*.

The Federal Reserve banks are owned by the member banks. When a new bank becomes a member, it is required to subscribe 6 per cent of its capital and surplus to the stock of the Federal Reserve bank, half of the subscription being paid in, and the other half subject to call. The Federal Reserve banks are privately owned by the member banks. *Both ownership and majority control of management rest in the hands of the members themselves.* This form of organization is intended to give the frame work for local autonomy and home rule in all banking problems which peculiarly affect each individual district. It effects the idea of paternalistic control somewhat, and gives the semblance of control from the ground up rather than from the top down.

The Reserve banks are required to pay 6 per cent cumulative dividends on paid-in capital stock. Excess earnings must be put into

a surplus fund until that fund equals 100 per cent of the subscribed capital stock. Thereafter, excess earnings must be divided, 90 per cent going to the government as a franchise tax and 10 per cent being set aside as additional surplus for the bank. This disposal of earnings is a guarantee that the Reserve banks shall not become mainly profit-seeking institutions. They exist chiefly for service and only incidentally for profits.

One of the Class C directors is designated by the Federal Reserve Board as Federal Reserve Agent and as Chairman of the Board of Directors. The chief duties of the Federal Reserve Agent are:

1. To promote friendly relations with member banks, and by publicity and education, bring about effective coöperation.

2. To have custody of the backing for Federal Reserve notes, to receive and pass upon applications for note issue, and to issue the notes to member banks.

3. To supervise examinations of member banks, and to safeguard the enforcement of the law.

4. To maintain statistical records of business and finance, and to make such reports and publications as may be helpful to banking and business.

The Federal Advisory Council consists of one representative from each district, selected by the directors of the Federal Reserve bank. Most selections are of prominent bankers, and are looked upon as honorary. Members serve without compensation and for a term of one year, unless reëlected. The Council is intended to form a point of contact between actual bankers and the agencies of government. Its recommendations are purely advisory, although in practice the government agencies have gone out of their way to solicit the advice and aid of the Council, to the end that solid bonds of coöperation might be maintained.

Reserves.—Under the Federal Reserve Act, member banks in central reserve cities must maintain reserves of 13 per cent of their *demand* deposits, in reserve cities 10 per cent, in all other cities and towns 7 per cent. In cities of all sizes, reserves against *time* deposits must be 3 per cent. Under the old National Bank Act, the reserves were 25, 25, and 15 per cent, respectively, against both time and demand deposits combined.

These reserve ratios apply to the member banks alone. But the Federal Reserve banks also have reserve requirements. Gold reserves must be 35 per cent against deposits and 40 per cent against Federal Reserve notes. The ultimate reserve against demand deposits of a rural bank is, therefore, 35 per cent of 7 per cent of such deposits, or only 2.45 per cent. The ultimate reserve against demand deposits of a bank in New York City is 35 per cent of 13 per cent of such deposits, or only 4.55 per cent. In general, one dollar of reserves in the Federal Reserve bank may support as much as about twenty dollars of demand and time deposits of member banks.

The new reserve ratios made possible a thinner reserve backing for bank deposits. Under the new law, each dollar of reserves in a Federal Reserve bank came to support about 50 per cent more deposits and notes than under the old law. During the period 1917 to 1923, the volume of gold reserves increased materially and since each dollar would support more credit than ever before, a marked expansion of bank credit occurred. This expansion contributed to the inflation of prices which occurred during the period.

But in spite of the fact that the reserve ratios were thinner than before, they were far safer. The entire legal reserve of each member bank must be carried with the Federal Reserve bank of its district. This arrangement was intended as a blow to the excessive centralization of reserves in New York City for call loan speculation. Whatever vault reserve a bank carries for till-money purposes does not come under legal regulation and does not count as reserve. Everything which is to count as legal reserve must be in the hands of the Reserve banks.

The Reserve banks pay no interest on legal reserves deposited with them. At first, member banks thought it a hardship to give up the 2 per cent interest which their deposits with correspondent banks had yielded, but in the course of time it appeared that this loss was offset by the fact that smaller total reserves could be carried and by other advantages of bank coöperation.

The concentration of legal reserves is a pronounced step in the direction of mobilizing reserves for emergency purposes. The member bank can replenish reserves in time of stress by either of two methods. First, it can send additional cash, in the form of gold, Federal Reserve notes, currency, or checks drawn on other banks. But in time of stress, these sources of new reserves are likely to be exhausted. Second, *it can borrow the additional reserves from the Federal Reserve bank, by rediscounting commercial paper.* This method is the special reliance for emergency elasticity of credit and mobilization of reserves. Banks short of reserves may borrow them from the Reserve banks. They can borrow, either on their own secured promissory notes, or by selling to the Federal Reserve the notes, drafts, or acceptances of their customers. The constant access to this flexible source of reserves protects the member banks from the panicky feeling which otherwise occurs in time of strain and crisis. In addition, it gives seasonal elasticity to reserves and credits, and adjusts banking facilities to business needs.

But it may happen that all the member banks in a given district will over-borrow from the Reserve bank, and exhaust its reserves. If emergency demand for reserves in any district reaches this extreme, it is possible for the Reserve bank of that district to borrow from some other Federal Reserve bank. The Federal Reserve Board in Washington may permit or compel such *interdistrict borrowing.* In 1920, Federal Reserve banks in St. Louis, Minneapolis, Dallas, Kansas City, Richmond, Atlanta and New York borrowed heavily from other Reserve banks, principally from Boston and Cleveland. Such borrowing spreads

reserves out to the greatest possible use, and adjusts reserves to the sectional differences prevailing at the time.

But it is conceivable that the expansion might continue to such a point that for the country as a whole, reserves in Federal Reserve banks would be below legal requirements. This contingency is provided for by the rule that the Federal Reserve Board may suspend for a limited time any reserve requirements, but shall impose a graduated tax upon the amounts by which reserve balances are allowed to fall below legal requirements. The over-expansion is permissible, but only under penalties which tend to make it as short lived as possible. This provision of the law has not been used up to the present date, although in 1920 reserves were nearly reduced to the point where suspension would have been required.

In making current reports of reserve ratios, the Federal Reserve Board follows the policy of consolidating the reserves against both notes and deposits. Thus, if the reserve ratio is reported as 60, the ratio means that gold reserves are 60 per cent of the combined Federal Reserve note issue and deposit liabilities of the Federal Reserve banks. This consolidated ratio is often used as an index of business expansion. If gold reserves remain constant, a decline of the ratio means that notes and loans have expanded to meet the expanding needs of business. The significance of the index depends upon whether the change is due to expanding gold supply or to expanding bank credit. The heavy inflow of gold imports to the United States during the war and post-war period upset the normal significance of the reserve ratio, since fluctuations in that ratio reflected *gold* movements rather than *business* movements.

Discounts.—When a bank discounts paper for a customer, it buys from him a promissory note, draft, acceptance, or bill of exchange, and calculates the purchase price at the face amount of the paper less the interest deducted in advance. Discounting is a method of extending credit to borrowers. If a member bank, having bought such paper from a customer, decides to resell the paper to another bank or to the Federal Reserve bank, the process is known as rediscounting.

Only certain kinds of paper are eligible for rediscount with the Federal Reserve bank. Eligible paper presented by a member bank for rediscount must have a maturity at the time of discount of not more than ninety days if the loan is for a commercial purpose, and of not more than nine months if the loan is for an agricultural purpose. Paper must arise out of actual commercial transactions, and must be issued or drawn for agricultural, industrial, or commercial purposes. Paper must *not* be issued or drawn for *investment* purposes, or for *speculation* on the stock exchange. However, paper drawn for the purpose of carrying or trading in bonds and notes of the government of the United States is eligible for rediscount. All such paper rediscounted for member banks must bear the indorsement of the member banks, and therefore must be two name paper or better.

In addition to rediscounting customer's paper, member banks may discount their own promissory notes directly with the Federal Reserve

bank. Such notes must be for periods not exceeding fifteen days, but may be renewed. They may have as collateral either securities of the United States, or commercial paper otherwise eligible for rediscount.

The Federal Reserve banks may go outside the member banks and buy commercial paper in the open market. By the open market is meant not any single building such as the stock exchange but that network of banks, brokers, and commercial paper houses which daily engage in the purchase and sale of notes, bills and acceptances. Before the Federal Reserve Act there was no open discount market worthy of the name in the United States. In this respect, the United States stood in sharp contrast to European countries, where a highly organized discount market was considered the essence of sound banking. The framers of the Federal Reserve Act had in mind the creation in this country of an open market modelled somewhat after European practice. The Federal Reserve Board and banks have deliberately done all within their power to encourage and stimulate the development of the market, and the result has been the expansion of open market facilities to an encouraging degree. The Federal Reserve banks are authorized to purchase and sell in the open market principally bankers' acceptances and bills of exchange, domestic or foreign, and with or without the indorsement of a member bank. They may also purchase or sell acceptances of Federal Intermediate Credit Banks and of National Agricultural Credit Corporations, whenever the Federal Reserve Board shall declare that the public interest so requires.

Finally, Federal Reserve banks may rediscount paper for each other. The Federal Reserve Board has power to permit or compel Federal Reserve banks to rediscount the discounted paper of other Federal Reserve banks at rates of interest to be fixed by the Board. This inter-district rediscounting is intended to secure the mobilization of reserves, by enabling those districts which are over-expanded to borrow from those districts which are under-expanded.

Discounting and rediscounting in the ways specified is intended to remedy the great defect of the old National Banking system. Reserves are organized and controlled to the end that they may be moved promptly to the points where they are most needed. This feature of the Federal Reserve plan is a primary reliance in averting panics and in insuring the safety and stability of banks.

Each Federal Reserve bank announces from time to time its official discount rate. The power to fix the official rate is divided between the bank and the Federal Reserve Board. In general, the Federal Reserve bank takes the initiative in proposing that changes be made in the rate, and the Federal Reserve Board accepts or rejects the proposal, although the Board itself may take the initiative if it considers that the bank is slow to propose needed changes. The power to fix the official discount rate is of the greatest importance to the successful administration of the banking system.

The importance of the official rate may easily be exaggerated, but

it is safe to emphasize the fact that it is of fundamental influence in all banking policy. The interest rate has a strong influence upon the pace of business. Inflation and boom may be held in check by a timely raising of the rate, and recovery from depression may be stimulated by a timely lowering of the rate. The rate is an instrument of control over business.

But the degree to which the official rate can affect the market rate of interest will depend largely upon the extent to which member banks feel obliged to borrow from the Federal Reserve banks. Obviously, if the official rate is merely theoretical, and no paper is presented for rediscount, the official rate cannot affect the market rate. At what times, then, do member banks tend to borrow from Reserve banks? At times of abnormal demands from their customers for credit. When business expands, bank loans expand. But banks find their own resources exhausted, and so turn to the Reserve banks. By rediscounting commercial paper, reserves may be replenished. If the member bank is charged a high rate on such borrowing, it will in turn pass the cost on to its customers in the form of higher market rates. Thus, the official rate will be passed on to the market, and will become *effective*. This process may go on haltingly and incompletely, but it will nevertheless be a most important influence in time of expansion and abnormal demand for credit.

But this process depends upon an initiative taken by member banks in applying for rediscounts. If they do not apply, the official rate cannot directly affect them. In order to make the rate effective at such times, it is necessary for the Reserve banks to deal in the open market. To tighten money rates in the open market, the Reserve banks will sell commercial paper already in their possession. Such sales to private parties in the open market will drain out the funds belonging to those parties. The private buyers will have commercial paper, but will have divested themselves of money. The Reserve banks will have the money, and such withdrawals will make money scarce and will make the market "tight." To ease the money market and depress rates, the Reserve banks would buy commercial paper, thereby flooding the market with new funds. By buying or selling in the open market, the Reserve banks may help to make the official rate of discount effective. There are limitations upon the use of this power, but in spite of limitations, the power is a potent weapon of control.

Numerous factors enter into the determination of what is a proper discount policy. The Federal Reserve Board in April, 1923, adopted the following resolution: "That the time, manner, character, and volume of open market investments purchased by Federal Reserve banks be governed with primary regard to the accommodation of commerce and business and to the effect of such purchases and sales on the general credit situation." Although this resolution refers specifically to open-market transactions, it may safely be taken as the principle which is

accepted by the Federal Reserve authorities for control of discount rates as well.

The word "accommodation," which is the heart of this pronouncement, is capable of a variety of interpretations. What is "accommodation"? And what are the needs of "commerce and industry"? How may these broad terms be defined as a matter of practical policy? The main factors involved are as follows:

1. *Reserve Ratios.* "It is to the reserve ratio that the public in most countries looks to get an indication of changes in the banking position and in the credit situation."² A falling reserve ratio under pre-war normal conditions meant that commerce and credit were expanding and that inflation and boom were in process. But under post-war conditions, gold is so abnormally distributed that a falling reserve ratio may mean simply that gold exports have been high, rather than commercial demand for credit excessive. As long as these abnormal gold conditions operate, the reserve ratio will have a limited value as a guide to discount and credit policy.

2. *Market Rates.* The average official discount rate for all districts in 1923 was 4.47 per cent, whereas the average rate which commercial borrowers paid to member banks in the same districts was 5.48 per cent. The official rate averaged 1 per cent *lower* than the member bank rate to customers. European practice has in general been to keep official rates *above* rates to customers, on the theory that the higher rate will discourage private bank borrowing unless it is absolutely necessary. Owing to different conditions in the United States, the Federal Reserve Board refuses to be guided by any mechanical rule as to the necessity of maintaining a fixed and invariable relationship between reserve bank rates and member bank customer rates. In fact, however, the official rate tends to be *below* the customer or market rates.

3. *Price Indexes.* Many authorities have urged that the Federal Reserve Board regulate credit with reference to price levels, particularly in such manner as to avoid fluctuations of general prices. The Board has refused to be guided arbitrarily by any such statistical indicator. It will take into account the trend of prices as one factor among many, but will not avowedly set out to regulate credit with a view to stabilizing the price level.

4. *Production Indexes.* Indexes of physical production of mines and factories, of distribution, and of consumption of commodities, show whether the economic system is functioning to capacity. If such indexes show that productive equipment is being used, that labor is fully employed, that the economic system is functioning to capacity, it is obvious that further expansion of credit can only increase dollars; it cannot increase goods. Further expansion of production cannot occur, no matter how much credit may be allowed to expand. Rates of discount may be raised sufficiently to prevent an over-expansion of credit. Credit

² See *Annual Report of the Federal Reserve Board* for 1923.

should be made to adapt itself to the needs of business, and such indexes of productive activity are of primary importance in showing exactly what the needs of business are.

5. *Psychological Factors.* The "temper of the community" influences the regulation of credit. A rise of 1 per cent in rates of discount when optimism is unbounded and confidence is firm may not check business at all, whereas a rise of one-quarter of one per cent when fear and doubt prevail may precipitate a financial crisis. The state of business psychology must be taken into account in shaping credit policy. Statistical indexes and mechanical guides are indispensable, but taken alone they are inadequate. They make no allowance for the fickle psychological factor. It is necessary that business judgment and banking wisdom consider psychological factors with statistical indicators in determining official credit policies.

Federal Reserve Notes.—The proposed remedy for the inelasticity of the National Bank note was the Federal Reserve note. The new note introduced a form of backing which increases and decreases automatically with the business and agricultural needs of the community. This security consists of commercial paper and gold. Back of the paper are immediately salable goods or other assets which may be realized upon rapidly, and maturities are so arranged that part of the paper is paid every day. The backing may consist of 100 per cent gold, or of as low as 40 per cent gold, the remaining 60 per cent being commercial paper. When gold is plenty, the whole backing may be gold, in which case the Federal Reserve note becomes practically a gold certificate. But when gold is scarce and expansion sets in, the needs of the community for currency are met by using proportionately more of commercial paper and less of gold as backing. Gold equal to at least 5 per cent of the note issue must be deposited in the Treasury of the United States as a redemption fund, but this fund counts as part of the 40 per cent reserve requirement.

Each Federal Reserve bank, through its Federal Reserve Agent, keeps on hand at all times a supply of notes ready to send out upon demand of member banks. The Reserve banks pay shipping costs on currency both to and from out-of-town member banks. The process of issue is expedited, to the end that banks may obtain new currency immediately and conveniently. The process of retirement of note issue is facilitated by prohibiting member banks from counting Federal Reserve notes as part of their legal reserve, and by prohibiting any Federal Reserve bank receiving the note issued by another from again putting the note into circulation, under penalty of a 10 per cent tax annually. As soon as the business use of money has been completed, currency is returned to the member banks, where it becomes superfluous. The member banks retire such unused surplus of currency at the Federal Reserve bank, and by so much contract the currency supply.

Because of the provisions facilitating retirement as well as original issue, the volume of notes tends to rise and fall in proportion to the

needs of business. *Note elasticity* has reference to two main types of changes,—seasonal and cyclical. In response to the heavy seasonal demand for currency at the time of Christmas shopping, at holiday periods, or at the time of harvesting farm crops, Federal Reserve notes increase in volume, and after such demands have been satisfied, the notes again decrease in volume. The promptness with which issue expands and contracts makes possible a genuine seasonal elasticity.

Cyclical elasticity is illustrated by the fluctuations of note issue in the post-war period. Notes in circulation rose from \$2,569,000,000 in November of 1918 to \$3,351,000,000 on October 29, 1920, and then shrank to \$2,132,000,000 in July, 1922, and \$1,656,000,000 in May, 1925. The peak of note issue coincided roughly with the peak of the business cycle, and the decline in note issue accompanied the depression phase of the cycle. The elasticity of note issue insures an adaptation of currency supply to the changing needs of business at each stage of cyclical movements.

But elasticity is not without its dangers. If elasticity is carried too far, it steps over into inflation and deflation. For this reason we may doubt the perfect confidence in the automatic working of elasticity shown in the following statement of the Governor of the Federal Reserve Board in 1919: "The difficulty, indeed the impossibility, of keeping in circulation an excessive volume of Federal Reserve notes should be understood. They are issued only as need for them develops, and as they become redundant in any locality, they are returned to the Treasury in Washington or to a Federal Reserve bank for redemption. Thus there cannot at any time be more Federal Reserve notes in circulation than the needs of the country at the present level of prices require."³ This theory assumes that note expansion is purely the result of high prices and in no wise the cause. This theory is the exact reverse of the usual quantity theory of prices. It appears in retrospect that the inflation of 1919 was in substantial measure due to the excessive elasticity of note issue. If an over-elastic issue can cause inflation, it becomes the duty of the Federal Reserve Board and banks to restrain and control the expansion of notes. The means of control are contained in the power to regulate the rate of discount which shall be charged on the paper presented as collateral, upon careful discrimination in selection of collateral paper by member banks, and upon direct refusals of further issue. If notes threaten to violate the 40 per cent gold requirement, the legal minimum may temporarily be waived, but only with the imposition of a graduated tax on all over-issue. In brief, elasticity cannot be trusted blindly as a sufficient guide unto itself. It requires the directing hand of careful banking authority.

Federal Reserve Bank Notes.—The Federal Reserve Act did not abolish outstanding National Bank notes, nor did it forbid additional issue in the future. But it anticipated a gradual retirement of the old notes, and made special provision to facilitate retirement by the creation

³ *Federal Reserve Bulletin*, August 1, 1919, p. 699 ff.

of the Federal Reserve Bank note. National Bank notes have fluctuated in the neighborhood of \$700,000,000 in circulation. It was expected that National Banks would sell the government bonds behind the old notes to the Federal Reserve banks, although the latter were not permitted to purchase more than \$25,000,000 worth of such bonds in any one year. The Federal Reserve banks were to be permitted in turn to issue Federal Reserve Bank notes on the government bonds as backing. The National Banks did not care to surrender their old notes, and as a result the plan to issue Federal Reserve Bank notes became practically inoperative. However from an unexpected source, Federal Reserve Bank notes came into existence in the war period. The Pittman Act authorized the melting and selling of not to exceed 208,000,000 ounces of silver coin, to be used largely to enable Great Britain to stabilize exchange relations with India. Federal Reserve Bank notes were to be issued in place of the retired silver certificates and coin. The amount of Federal Reserve Bank notes so issued was \$260,000,000. After the crisis was over, the Treasury was required to repurchase an equivalent amount of silver, and to retire the temporary Federal Reserve Bank notes. That process has been completed and Federal Reserve Bank notes are a negligible portion of the present monetary circulation.

Realizing the unwillingness of the National Banks to surrender their old style bank notes, the Treasury Department has announced the intention of forcing the retirement of the old notes. Some of the government bonds used as backing mature soon, and instead of being renewed, they will be paid off. Other bonds are callable, and advantage will be taken of this option. By gradually eliminating the bond backing for National Bank notes, the notes can be forced out of existence. Even this process, however, is very gradual, and must be expected to occupy a long period of years.

Clearance.—In any city of considerable size, the main banks are organized in clearing houses. The principle of the clearing house is in essence that the member banks shall settle the balances of debit and credit among themselves by a process of cancellation. In a single city, the banks are not acting each independently of all the others, but are constantly doing business with each other. If there are twenty important commercial banks in a given city, the depositors of each bank are drawing checks on their accounts and sending the checks to depositors in the other banks as a means of paying bills to business men who keep their deposits with those other banks. Suppose a business man who does his banking with bank No. 1 is engaged in business deals which involve the payment of bills to and the receiving of money from fifty other men. Suppose the fifty other men have banking done, not by bank No. 1, but by the other nineteen banks in the city. Checks are passing back and forth through the various banks, to and from the various business men, with the result that the deposits of each business man vary from day to day. The check amounts to an order to the business man's banker to transfer a certain amount of funds to another man's

banker to be put to the deposit account of the second business man in that bank. Hundreds of checks call for hundreds of transfers of funds from bank to bank, involving millions of dollars. The clearing house is a simple and convenient means of effecting such transfers by means of cancelling the accounts of the various banks in the clearing association. Each bank sends to the central clearing house its checks on other banks, representing the amount owed *to* it by other banks. The other banks bring to the clearing house the checks on the bank first mentioned, representing the amount owed *by* it to other banks. The totals are set over against each other, and balances are ascertained. The balances only are paid.

The methods of paying such balances vary greatly, including direct transfer of cash, clearing-house certificates based upon cash deposits by each member bank with the clearing house, drafts by small banks upon banks in large centers, and adjusting banks' balances with the regional Federal Reserve banks. Since the entry of the Federal Reserve system of banking, balances can be settled by each bank's depositing funds with the Federal Reserve bank of the district and thereafter ordering the bookkeepers of the Federal Reserve bank to transfer on their books the balances involved in the inter-bank clearings. A system of book accounting then increases or diminishes the deposits of each bank and thereby, without the handling of actual money, even the balances are adjusted by merely making the proper entries on the books of the Federal Reserve bank.

A considerable percentage of the banks in a city are not members of the clearing-house association, due to the cost or to the fact that they are not wanted. These non-member banks clear their accounts by using one of the member banks as agent. In smaller communities local clearings between banks are made by each bank's sending a messenger to the other banks to present the check accounts, and thereby to secure a cancellation of a part of the count and a payment of the balance. The bulk of clearings, however, are made through the big banks organized in clearing houses. The largest clearings are in New York, where the average daily clearance runs around \$1,000,000,000.

The discussion thus far has been devoted to interbank clearings within a town or city. It is equally important to effect clearings between banks scattered all over the country. The Federal Reserve system supplies a means for carrying out these clearings between the banks of different communities. Each of the reserve banks acts as a clearing agent for the banks within its district. For example, if a bank in Buffalo receives from one of its customers a deposit of checks, some of them made out on a bank in Albany, some on a bank in Rochester, and some on a bank in Poughkeepsie, the Buffalo bank may send the checks direct to the Federal Reserve bank of that district, located in New York City. The Federal Reserve bank in turn makes the collections from the banks in Albany, Rochester and Poughkeepsie. At the same time, the three latter banks may have sent checks drawn on the Buffalo bank to be col-

lected through the Federal Reserve bank. The reserve bank, by a process of book accounting, may offset the debits and credits of the various banks, and the balances may be adjusted by book entries transferring deposits which the member banks carry with the reserve bank. This system practically does away with the shipment of specie from bank to bank, and effects clearance between banks by the use of checks and book accounting.

The clearings between banks in the twelve separate reserve districts are effected in a similar way. A bank in one district desiring to collect a check drawn on a bank in another district sends it to the reserve bank in its own district, which forwards the check to the reserve bank in the other district, which in turn collects from the specified bank within its jurisdiction. Each of the twelve Federal Reserve banks ascertains daily the total of all its credit demands upon the other reserve banks and wires the amount by private leased wire to the Federal Reserve Board at Washington, D. C. This central organization at Washington holds a "gold settlement fund," consisting of actual deposits of gold or gold certificates from the twelve reserve banks. The central board therefore lines up the claims of each of the twelve reserve banks against the others, and after arriving at the balances due to or from each bank, pays the balance by making an entry on its books increasing or diminishing the gold deposits of each bank. This gold clearance fund is not actually handled in each case; there is simply a record made on the books of the central board signifying that a part of the gold deposits of one reserve bank is transferred to the account of another. This system of clearance involves a minimum of money shipments, and accomplishes the services of clearance by the use of checks and book accounting. The gold settlement fund on May 20, 1925, was \$654,158,000. The volume of transactions cleared through this fund during the year 1923 was \$89,614,733,000.

The Federal Reserve Board and banks have developed a nationwide *par collection system*. Non-member as well as member banks may have the Federal Reserve banks collect checks for them at par, provided only such banks agree themselves to remit at par all checks presented for collection by the Reserve banks. Par remittance refers to the policy of the drawee bank. Such a bank must pay the face amount of checks, without deductions for fees or charges. The person in whose behalf the collection is being made is assured that his account will be credited for the full amount of all items. Uniformity and certainty are the main advantages of par remittance. Much opposition was encountered from many banks to the surrender of the right to charge fees on remittances. However, the par list of banks had increased to a point in the middle of 1924 where, aside from member banks, 15,820 non-member banks were remitting at par, and only 3,553 were not remitting at par. Judicial decisions have restricted somewhat the authority of the Federal Reserve institutions, and in the future the scope of the plan must depend upon the voluntary support of the banks of the country. The substantial ad-

vantages of uniform and economical collection promise to hold the bulk of the banks on the par list.

Fiscal Agency Duties.—Subtreasuries of the United States have been done away with, and the Reserve banks have become the exclusive fiscal agents of the federal government. During the World War the Reserve banks had charge of issuance of bonds and payment of coupons. Government disbursements are made by checks drawn on the Reserve banks. The revenues of the government may be deposited in the Reserve banks. The fiscal operations lead to important forms of coöperation between banks and government.

Members Other than National Banks.—All National banks are of necessity members of the Federal Reserve system. State banks and trust companies may become members upon fulfillment of certain requirements. The capital requirement is the same as for national banks, namely, at least \$25,000 for banks in towns of less than 3,000 population; \$50,000 in towns of 3,000 to 6,000 population; \$100,000 in towns of 6,000 to 50,000 population, and \$200,000 in towns of more than 50,000 population. State banks having only 60 per cent of the required capital may become members, provided they undertake to accumulate the additional capital within a reasonable period. State members like national banks are required to make reports to and submit to examinations by the Federal Reserve authorities. They become subject to the same requirements for legal reserves, and obtain the same privileges of rediscounting and borrowing from Federal Reserve banks. Under date of June 30, 1924, the member banks were distributed as follows:

MEMBERSHIP IN THE FEDERAL RESERVE SYSTEM, 1924

	Number of Banks	Amount of Resources (millions of dollars)
National	8,043	24,369
State	1,544	14,618
Total	9,587	38,987

At the same date there were 13,598 non-member banks, with resources of \$11,587,000,000. Although the larger proportion of individual institutions are non-members, nevertheless most of these are very small banks. Consequently, the bulk of banking resources of the country is in the Federal Reserve System. Only about one-third of all the banks are members, but this third have nearly two-thirds of the banking resources of the country.

Agricultural Credit.—The banking needs of farmers have been of a special character, requiring specific adaptations of banking facilities to these particular needs. The purchase of farms requires long term credits. To provide these, two types of institutions have been created.

First, there are *twelve federal land banks*, making loans in some cases direct to farmers, but indirectly, for the most part, through the medium of voluntarily formed local coöperative *farm loan associations*. Members of such associations must be actual farm owners. Loans may be from five to thirty-six years. Reasonable rates of interest are insured, and gradual retirement of the principal sum is provided for. The banks are permitted to raise capital by issue of tax exempt bonds for sale in investment markets, such bonds being backed by farm mortgage collateral. Second, there are *joint stock land banks*, privately owned and managed. Farmers who do not wish to join a farm loan association may borrow from these banks. Loans are for a long time period and at reasonable rates of interest. Both the federal land banks and the joint stock land banks are under the regulation and control of a *Federal Farm Loan Board*, consisting of the Secretary of the Treasury, and six other members appointed by the President with Senate approval.

The agricultural depression following 1920 impressed the farmers with the need for *intermediate* credits, to provide loans for longer periods than ordinary commercial credits and for shorter periods than the farm loan system. Two types of institutions were provided to meet this need: intermediate credit banks and national agricultural credit associations. The capital of the former is subscribed by the United States government, while the capital of the latter is subscribed by private investors. Loans may be made for periods of from six months to three years, and loan policy is subject to regulation by the Federal Farm Loan Board. A further concession to agriculture was made by extending the maturity of paper eligible for rediscount with Federal Reserve banks from the old limit of six months to a new maximum of nine months. Also, national banks may lend on farm mortgage security up to five years. Other incidental extensions of farm credit privileges combined to create unprecedented facilities for financing agriculture.

Proposals for Regulation of Money and Prices.—The importance of introducing a greater degree of stability into the value of money and the level of prices has led to various proposals. Three methods of stabilization may be mentioned:

1. The compensated dollar.
2. The manipulation of money issue.
3. The manipulation of the discount rate.

The proposal for a compensated dollar aims to stabilize the *value* of the dollar by manipulating the *weight* of the dollar. The mode of procedure, to quote Irving Fisher, would be as follows: "In short, then, our rule of adjustment is simply this: for every 1 per cent of deviation of the index number above or below par at any adjustment date, we then increase or decrease the dollar's weight by 1 per cent."⁴ The objection that confusion would result from coining gold dollars of varying weights is met by the explanation that gold would not be coined but would remain in bullion form. It would be a redemption fund in weight. A

⁴ For detailed explanation, see Irving Fisher, *Stabilizing the Dollar*.

tendency for prices to rise would be *compensated*, or checked, by increasing the weight of the dollar. Since rise in prices is the obverse of the fall in value of money, we can put the same principle in terms of money value by stating that a fall in the value of the dollar would be offset by putting more gold into the dollar, until its value was restored to the former level. The many complex problems raised by this plan cannot be discussed here. It may be observed, however, that the compensated dollar would have its chief value in stabilizing the *secular* trend of prices. A long upswing of prices such as occurred from 1896 to 1914 would be held in check by the proposed plan. It may be doubted, however, whether the plan taken alone would be effective in controlling the cyclical rhythm of prices. It would require to be supplemented by at least two other policies of control, which may be briefly presented.

The manipulation of the volume of currency with a view to stability of prices would be an indispensable auxiliary. If a government allows violent fluctuations in the amount of note issue, the difficulties of price stabilization are insurmountable. Inflation would be unpreventable unless the issue of new currency could be brought under restriction. During the war period, we had abundant illustration of the devastating consequences of unrestricted note issue. No plan for a compensated dollar or any other stabilizing device could hope to succeed in the face of such lavish expansion of note issue. *A proper restriction of currency supply is a necessary adjunct of any device of price stabilization.*

The manipulation of the discount rates is a possible device for use by the central bank of a country, and in the United States, for use by the Federal Reserve authorities. The rate of discount affects primarily the volume of bank credit. As the rate is raised, loans become more expensive, and borrowers are discouraged from asking for further expansion of credits. Although the Federal Reserve Board has refused to tie itself up with any definite policy of rate control of prices, nevertheless such a consideration is undoubtedly one important factor in rate determination. Such rate control would be chiefly useful in reducing the excessive fluctuations in the business cycle. It would be valueless in controlling the secular trend of prices. Rate control in conjunction with the compensated dollar would afford a rather comprehensive plan for steadying the price level. Rate control would especially apply to cyclical trends, and the compensated dollar would especially apply to secular trends. The two together would have a powerful influence over price movements.

An important qualification of this proposal should be indicated. The word "stabilization" is not used in an absolutely fixed sense. Rather, it is used comparatively. The desire is to reduce the excessive price fluctuations of the past. The desire is not to reduce prices for all time to a dead level. A *mild* rise and fall of prices may well be a dynamic influence in business. It is the *excessive* rise and fall which has been the gross price evil of the past.

Conclusion.—The banking system has not reached a final and perfected form. It is in process of development and evolution. The Federal Reserve institutions have been an invaluable aid to American banking. They provide the conditions for future progress and expansion. They solved the two great evils of the old National Bank system, namely, inelasticity of note issue and inability to mobilize reserves for emergency purposes. They face new problems equally severe and equally perplexing. The system must be pictured as in a state of growth, adjustment, and transition. One of the greatest problems of present-day banking is the proper formulation of discount policy by the Federal Reserve authorities. To what extent the Federal Reserve authorities should use their powers to steady the value of money is a basic issue, and the final solution arrived at will have the most important consequences for the people of the United States.

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CHAPTER XXVIII

BUSINESS CYCLES

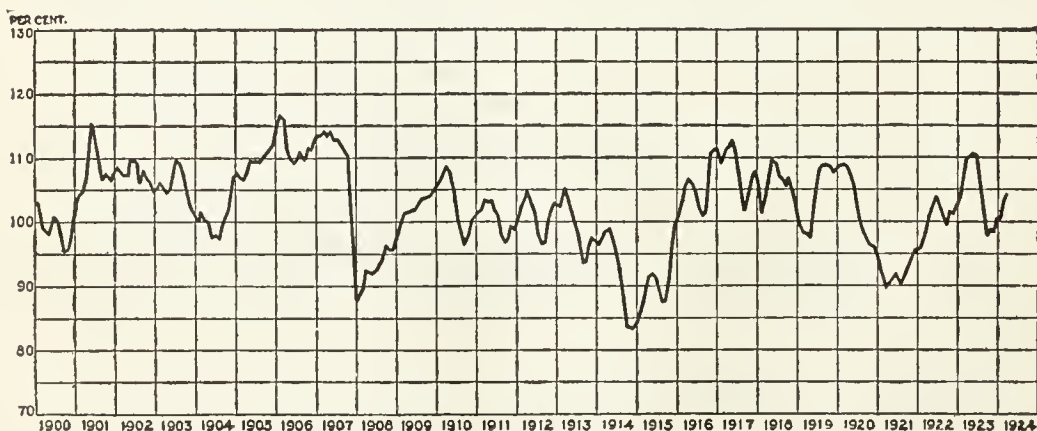
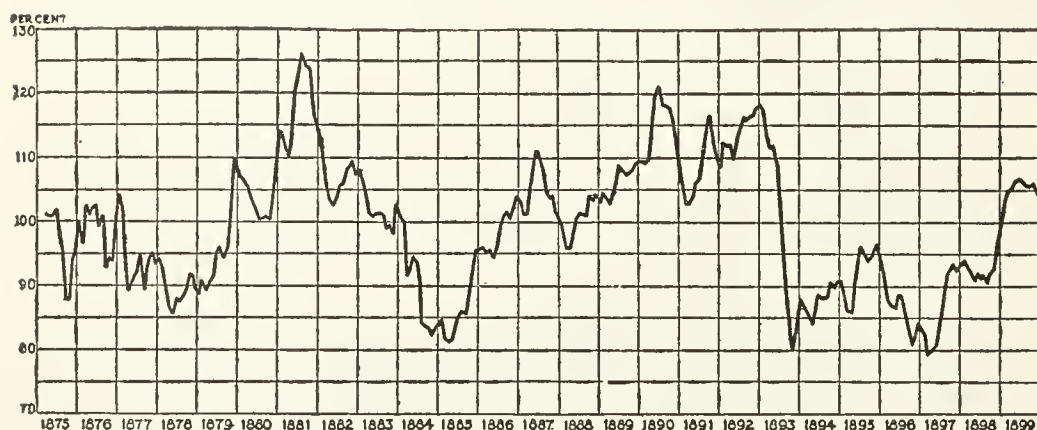
The Meaning of the Business Cycle.—"Business cycle" is a phrase used to designate the series of changes in business activity which are characterized by alternating prosperity and depression. The phrase serves to emphasize the observed fact that the typical condition in business is not permanent prosperity. Instead, it is a constant series of changes—from prosperity to crisis, from crisis to depression, from depression to recovery, from recovery back to prosperity again. This succession of changes is not exceptional or unusual, but is the customary and expected round of business behavior. When business is at a peak of good times, it is on the verge of depression. When business is in the slough of despond, it is at the threshold of recovery. Ebb and flow between good times and bad times is the essential characteristic of the business cycle.

However, the ups and downs of business do not occur with the exact regularity with which a pendulum swings back and forth. No two business cycles are of exactly the same duration. No two cycles have exactly the same rise and fall of prices or production. No two cycles have exactly the same background of fundamental economic conditions. Each cycle has an individuality of its own. Nevertheless, in spite of all such individual differences and variations, all cycles run true to type. They follow well defined lines of general behavior. They have basic traits in common. They operate under the influence of similar fundamental forces. The individual peculiarities of each cycle exist within limits clearly defined by the basic common characteristics of all cycles. Two errors are equally to be avoided: the one, exaggeration of the notion that a cycle runs a stereotyped, fixed, and absolutely periodic course; the other, exaggeration of the notion that the ups and downs of business are chaotic or haphazard phenomena which obey no general laws.

Duration of Business Cycles.—Since 1810, American business has experienced a breakdown of prosperity sixteen times. Viewing the fact that such crises occurred in 1825, 1837, 1847, and 1857, and after the Civil War in 1873, 1884, 1893, and 1903, some authorities have concluded that a crisis is due to occur every ten years. However, during more recent years a seven-year cycle has been assumed, chiefly due to the fact that crises occurred in 1907, 1914, and 1920. Both of these historical assumptions, however, are too arbitrary and uncertain to be used as a basis for forecasting cycles of the present day.

The most commonly accepted modern version of the duration of business cycles is that periods of business depression since 1890 have occurred at intervals of approximately forty to forty-four months. This conclusion is based upon a statistical study of the intervals between successive low points in interest rates and commodity prices. These low points from 1892 to 1914 recurred at intervals of thirty-four months, twenty-six, forty-four, forty-four, forty-three, forty-three, and thirty-six.

BUSINESS ACTIVITY OVER 50 YEARS, AS REFLECTED IN BANK CLEARINGS OUTSIDE NEW YORK CITY, CORRECTED FOR PRICE AND SEASONAL VARIATIONS, AND FOR NORMAL LONG TIME RATE OF GROWTH. THE COMPUTED TREND OF BUSINESS ACTIVITY EQUALS 100 PER CENT *



* Constructed by the Federal Reserve Bank of New York, *Monthly Review*, May 1, 1924.

The forty-three and forty-four-month cycle was of most common occurrence, with one as short as twenty-six months, and two midway between twenty-six and forty-four months. In general, therefore, a period of three to four years intervened between depression and de-

pression.¹ These historical observations would indicate that the duration of the business cycle is not sufficiently regular and fixed to warrant the precise forecasting of each stage of the cycle on the basis of a constant time interval.

The duration and recurrence of the oscillations of business may be visualized from the diagram of bank clearings (see page 580). Bank clearings are a valuable index of business activity because the bulk of business involves the use of bank credit and the changes in use of bank credit are reflected in the rise and fall of bank clearings. Bank clearings outside of New York City are used as a means of eliminating the heavy volume of bank credit used in New York for speculation on the stock exchanges. These outside clearings measure more strictly business activity, to the exclusion of speculative activity on the stock markets. The deviations above and below the line of 100 per cent show the divergence of business activity from the trend of normal growth. Allowance has been made for changes in the price level, so that the fluctuations measure actual physical volume of trade and not merely dollar values. The deviations from the line of regular increase, therefore, represent substantially the cyclical changes in the volume of the country's business.

Phases of the Business Cycle.—For convenience in analysis, the cyclical oscillations of business may be separated into their main phases or stages. The four main phases, in order of sequence, are prosperity, crisis, depression, recovery. Each phase represents a distinct stage of evolution into the succeeding phase. Prosperity sets in operation forces which develop into crisis, crisis develops into depression, depression into recovery, recovery into prosperity.

The behavior of each phase is exceedingly complex, and in order to thread a way through the complexity, a central clue or guide is necessary. This guide is contained in profits, present and prospective. Prosperity exists when the prospect of profits is good. Crisis comes when the prospect of profits collapses. Depression exists as long as the prospect of profits remains low. Recovery comes when the prospect of profits revives. The many forces which affect any phase of the cycle bring their influence to bear by altering in some way the prospect of profits. The waxing or waning of profits is the crucial center, the focal point, in each phase of the business cycle.²

If we start with the *prosperity* phase of the cycle, the natural inquiry is: Why does prosperity not tend to be permanent? In general, the answer is, because prosperity sets in operation forces which tend to bring a downfall of profits and the prospect of profits. The downfall of profits causes a downfall of prosperity all along the line. The reasons for this downfall of profits may be briefly traced. As prosperity goes on, various business costs advance more rapidly than prices of goods

¹ See Homer B. Vanderblue, *Problems in Business Economics*, pp. 18-19.

² For statistical analysis of the phases of the cycle, see W. C. Mitchell, *Business Cycles*, pp. 44-558.

from which business income is derived. Expanded business requires the use of old machinery and poorly located plant. Labor costs per unit of product increase, partly because scarcity of hands requires the employment of the less effective classes of labor, partly because of rising wages and overtime pay, but probably mainly because of the declining efficiency of labor when there is no fear of being fired for slacking. Capital costs rise as interest rates advance in response to the demands of expanding business. Prices of raw materials tend to rise more than prices of finished products, thus increasing costs relative to income of manufacturers. Managerial costs increase due to waste, laxity, and extravagance born of the general spirit of buoyancy and optimism and the feeling that since money comes easy, there is no necessity for strict economy and frugality. When costs, of which these are illustrative, advance out of proportion to selling price, profits begin to suffer.

The check upon selling prices comes from various quarters. Many lines of retail prices cannot be raised further because custom and habit have become so ingrained that the public will not buy at higher levels. Other lines of prices, particularly public utilities, cannot be raised because public service commissions regulate their rates. Other lines of prices cannot be raised further because of price fixing laws, and of prosecution for profiteering or for conspiracy to raise prices in violation of anti-trust laws. Still other lines of prices cannot be raised because over-production of those particular types of goods has occurred. In all such lines, the jacking-up of selling prices to cover rising costs comes to a halt.

This very fact of restraint in certain prices brings gross inequalities as between industries. Concerns that can no longer advance prices have to buy materials from concerns that "kite" their prices to extremes. These individual inequalities of prices are aggravated by the general unevenness of broad classes of price fluctuations. Retailers, for instance, find that wholesale prices tend to rise faster and higher than retail prices. Dealers find that prices of consumers' goods do not tend to rise as fast as prices of producers' goods. Manufacturers find that prices of raw materials tend to rise faster than prices of finished products. These accumulating inequalities in prices bring severe maladjustments between business costs and selling prices. The inevitable result is an encroachment upon profits. The concerns which are the hardest hit face the possibility of failure. This danger of failure is of the utmost importance to the banks, to the money markets, and to the security markets.

The acute situation which then arrests the attention of the banks is but the culmination of a series of banking phenomena which are characteristic of the prosperity phase of business. The financial aspect of prosperity is a fundamental part of the train of forces which tends to undermine business expansion. Demand for bank loans increases, partly because of the increasing volume of business and partly because at rising price levels more bank credit is necessary to conduct business.

The reaction of the banks to this growing demand for their funds is to advance the rates of interest. They cannot increase loans indefinitely because their reserves tend to become exhausted. The advance of interest rates restrains further loans and thereby protects the banks' reserves. But what is a device of self-protection for the banks is a burden upon business men in pursuit of profits. The rise of interest rates not only threatens their profits by imposing upon them heavier costs for capital, but acts as a psychological depressant and raises a doubt everywhere as to the prospective earnings of business. Business men have to give up plans for further expansion because at the higher interest costs they cannot hope to make a profit or because banks are reluctant to grant further accommodation even at the higher rates. When old loans come due, bankers are reluctant to grant renewals. Borrowers whose prospects of future earnings are poorest are pressed to pay off their loans at the banks. The liquidation of loans forces business men to turn their earning assets into cash. This means dumping goods on the markets for what they will bring, curtailment of productive activity, and a weakening of the whole business structure.

While the individual bankers are taking steps to protect their financial position, the official banking authorities are taking action looking to the protection of the banking system as a whole. The Federal Reserve banks in the United States—or the central banks in foreign systems—raise their discount rates as a means of conserving gold reserves and of limiting the unhealthy expansion of credit. The official advance of discount rates not only tends to increase interest costs to business but exerts a powerful psychological influence in warning business that the boom has reached a danger point. The prestige and leadership of official action thus reinforces the self-imposed restraints of the individual bankers, and both alike tend to halt the flood of prosperity.

The security markets usually assume an attitude of caution and restraint some months in advance of the commercial banks. The demand for loans for business purposes becomes so strong during boom times that funds for speculation become scarce. As funds are drawn away from speculation, a liquidation of securities is initiated on the stock markets. This liquidation is accelerated by the anticipation on the part of speculators that profits are likely to diminish owing to the unhealthy condition of business and banking. Speculators seek to unload their holdings before dividends fall. Higher call loan rates increase the cost of speculation. When the stock markets assume this attitude, it is difficult for business to raise new capital on favorable terms, and business feels obliged to curtail its expansion. The security markets, like the banks, are closely linked at all points with the prospect of profits and with the causes of the downfall of prosperity.

These checks upon prosperity are augmented by maladjustments in the physical volume of production and trade. As industry expands, some lines over-produce while other lines under-produce. This does not necessarily mean over-production in the aggregate, but only an un-

balancing of production—too much of this commodity, too little of that commodity. The over-produced lines of goods accumulate in dealers' hands and develop into excessively large inventories. When industry and trade discover to what an extent individual producers have over-estimated the market for their product and have piled up excessive stocks of goods, there ensues a slump of prices in those lines. Goods are dumped on the market at cut prices. Inventories are liquidated for what they will bring. Profits suffer heavily. Prosperity is undermined.

Coloring all of these tangible influences is an intangible psychological influence. Prosperity feeds upon a general state of confidence and optimism. But when rumors of excess stocks and business losses float around and when the prospect of profits disappears in certain hard-hit industries, a contagion of caution, doubt and pessimism spreads everywhere. Psychological depression, once it is under way, hastens the gathering momentum of the tangible forces which are breeding the downfall of prosperity.

When these factors have reached an acute stage, the *crisis* phase of the cycle follows. Prices of securities reach bottom, and general liquidation takes place on the stock markets. Prices of commodities fall sharply, and liquidation of inventories takes place in the commodity markets. Interest rates rise to a high point, bank reserves decline to a low point, and pressure is brought to bear on weak borrowers to liquidate their loans at the banks. So many businesses are in need of bank funds to tide them over the emergency that the volume of bank loans continues high, even at the unusual rates of interest. The crying need of business is for "accommodation" until the crisis is past. Fundamentally solvent, most concerns nevertheless require to be "taken care of" by their banks until conditions have bettered. Some concerns are fundamentally insolvent, but the banks dare not let them fail for fear of the general state of panic which such failures might cause. The strain is so great on individual banks that they fall back upon the Federal Reserve banks—or the central banks in foreign systems—for extra resources. By mobilizing the country's reserves at the point of need, the Federal Reserve banks are able to supply the extra resources to the banks which need them. Before the Federal Reserve system was established, the inability to mobilize reserves meant that a crisis usually developed into a financial panic. All efforts of banks and business are concentrated on maintaining solvency until the crisis is past. Meanwhile the physical volume of business declines. Factories close down or run part time. Workmen are discharged and unemployment increases sharply. Psychological pessimism becomes acute. The prospect of profits is thoroughly undermined, and most business concerns consider themselves fortunate if they can simply minimize their losses and avert the disaster of bankruptcy.

This critical tension usually lasts only a few months. Then the *depression* phase of the business cycle envelops the whole field of business. Pessimism settles down like a pall. With the prospect of profits

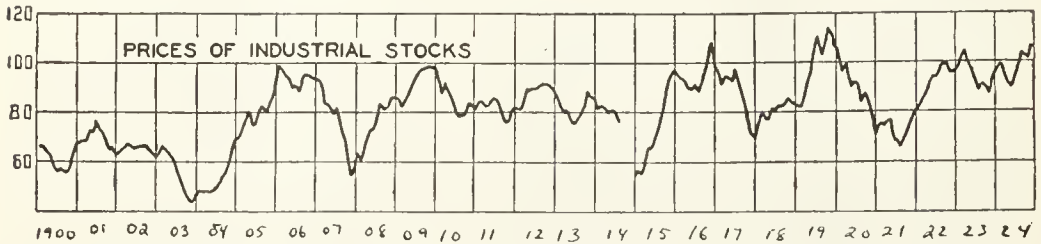
at a low ebb, the prices of securities on the stock markets stand at the time at a minimum. With the business demand for capital weakened, the rate of interest falls to a low level, and reserves, savings, and unused business deposits accumulate in the banks. With labor unemployed, the purchasing power of consumers declines, and the fall in the demand for commodities is reflected in low commodity prices. The physical volume of production is below normal and trade is sluggish and uncertain. Operating costs tend to decrease because of the lowered prices of materials, the lowered interest rates, the increased efficiency of labor, and the increased economy of management. Depression tends to squeeze the waste and extravagance out of business with an iron hand. The psychology of hard times permeates the whole area of business, and the worst pessimists begin to believe that depression is bound to be the permanent condition of business.

But depression sets in operation forces which tend to pull business out of depression. These forces initiate a period of *recovery*, developing into prosperity again. The earliest recognition of this recovery is a rise in security prices and an increase in speculative activity. Even while conditions look black to the casual observer, the shrewd calculators on the stock markets discern that in the not far distant future business is likely to pick up. Acting upon this anticipation of a reviving prospect of profits, the stock market bids up the prices of securities. Low interest rates and consequent low cost of capital offer an incentive to business men to borrow and expand production. Low costs of materials and of labor likewise stimulate production. A further stimulus to production begins to be felt from the side of demand. The stocks of goods left over from the earlier boom period become exhausted, and new production is required in order to meet the current demand of consumers. This demand factor not only stimulates new production, but also causes an upward movement of commodity prices. Such a price incline aids the business man in profit making by buying low and selling high. Banks accommodate the recovery of business because their accumulated reserves from depression are high and they are anxious to convert idle resources into earning assets. Actual profits increase and the prospect of still greater profits becomes strong. The psychological factor of confidence and optimism responds to all these stimulants, and business resumes the state of prosperity which it held at the beginning of our analysis of the cycle.

Some Major Factors in Cyclical Changes.—The foregoing account of the evolution of each phase of the business cycle has referred to a number of the main factors which contribute to the fluctuations of business. We may now isolate some of these factors and study their significance singly and individually.

(1) *Prices of Securities and Activity on the Stock Markets.* The stock markets play a highly sensitive rôle in the business cycle. The prices of securities show a pronounced cyclical movement. And these price movements are accompanied by similar ups and downs in the

volume of sales on the exchanges. Rising prices and rising volume of sales are commonly described as a "bullish market"; falling prices and falling volume of sales as a "bearish market." The accompanying diagram shows the averages of twelve industrial stock prices up to the outbreak of the war in 1914, and the averages of twenty industrial stock prices since that time. In the latter period the entire list is composed of common stocks.³



The price fluctuations of common stocks show in more extreme degree what the price fluctuations of other kinds of stocks show in moderation. These fluctuations, both extreme and moderate, occur early in each phase of the business cycle and tend to foreshadow the changes that are to come in industry and trade. This is because the buying and selling of securities is, in a fundamental sense, buying and selling the right to share in the present and the expected future profits of industry. The stock market does not wait for an increase of profits and dividends to occur, but anticipates the increase before it actually arrives. Stock market prices are based upon expectancy, upon anticipation, upon future prospects. Consequently, while business appears still to be depressed, the stock market develops a bullish movement, not because conditions today are better, but because the stock market reflects a belief that conditions a few months hence will be better. On the other hand, while business appears still to be in an excellent state of prosperity, stock prices fall in a bearish movement, not because conditions are bad, but because of a belief that conditions a few months hence will be bad.

The impelling cause of the price movements is the prospect of profits, but the degree to which this cause can work itself out depends in important ways upon the level of interest rates. The prerequisites for a stock market boom are low interest rates and abundant bank resources for speculative loans. The foundation for a major bullish movement is cheap money. On the other hand, dear money acts as a brake upon stock market activity, and tends to precipitate a major bearish movement. The reason for this influence of interest rates is partly the fact that they directly determine the cost of speculative loans, but, in a more

³ This chart is derived from the prices of industrial stocks compiled by the Dow Jones Company and published by the *Wall Street Journal*. For a critical discussion of the index, and of the significance of the change from 12 to 20 stocks in 1914, see the *Harvard Review of Economic Statistics*, April, 1919, pp. 145-147; and August, 1921, pp. 265-275. The fluctuations of this index are found to correspond fundamentally with those of an index of common stock prices compiled by the Harvard University Committee on Economic Research.

important respect, the fact that interest rates have a broad significance as to fundamental business and banking conditions. This broad meaning of interest rates is of high importance. Since high interest rates reflect an exhaustion of bank resources and a tendency to over-expansion in business generally, they are an indication of the probability of decline in future profits and a downfall of prosperity. Since low rates reflect large potential bank resources and under-developed business, they are an indication of the probability of increase in future profits and a recovery of prosperity. Thus interest rates reflect broadly the fundamental conditions of business and of profits. Consequently, in the stock markets low interest rates combined with a bright prospect of profits lay the foundation for a boom market, and high rates combined with a dark prospect of profits bring it to a close.

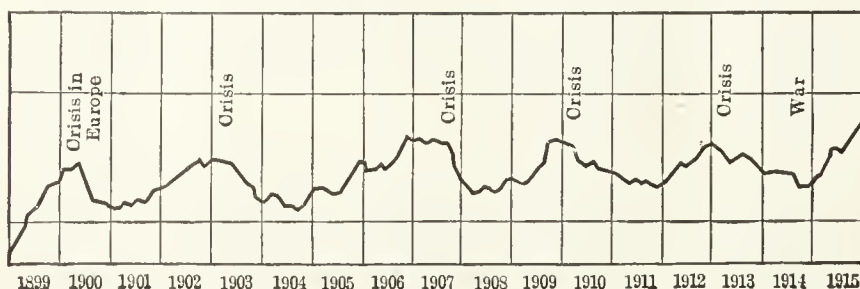
The stock markets, therefore, occupy a most important cyclical position. Their sensitive adjustment to prospective profits and to changes in interest rates causes them to anticipate the fluctuations in fundamental business and banking conditions. Speculation in securities revolves primarily around these two factors of future profits and interest rates. Because speculation is so sensitive to these important factors, stock market cycles are an integral part of business cycles.

(2) *The Prices of Commodities.* In general, commodity prices advance during business recovery, reach their crest during prosperity, collapse during crisis, and reach bottom during depression. Inflation stimulates business by enabling concerns to sell at today's high prices what they bought at yesterday's low prices; deflation depresses business by forcing concerns to sell at today's low prices what they bought at yesterday's high prices. The diagram on p. 588, based upon the Bureau of Labor Statistics index of wholesale prices for 404 commodities, shows the cyclical wave of the general price level. To ascertain the real significance of this cyclical wave, it would be necessary to study the elements of which it is composed. These elements show a most complex array of individual variations. The average wipes out these individual differences, and shows the change in the general purchasing power of the dollar. For the purpose for which it is intended, the price index which wipes out individual variations and measures general purchasing power is thoroughly sound. However, for the purpose of analyzing the business cycle, the individual variations themselves are of just as vital importance as the general average. Consequently, for business cycle purposes, indexes of individual price movements are necessary as a supplement to the more general indexes.

For the special purpose of measuring business cyclical fluctuations, Professor Warren M. Persons has constructed a special price index based upon prices of ten selected commodities. The commodities used are cotton seed oil, coke, pig iron, bar iron, pig zinc, mess pork, hides, print cloths, sheetings, and worsted yarns. These commodities were chosen because they were found to be unusually sensitive to price changes and not to be greatly affected by seasonal changes, and because they are of a

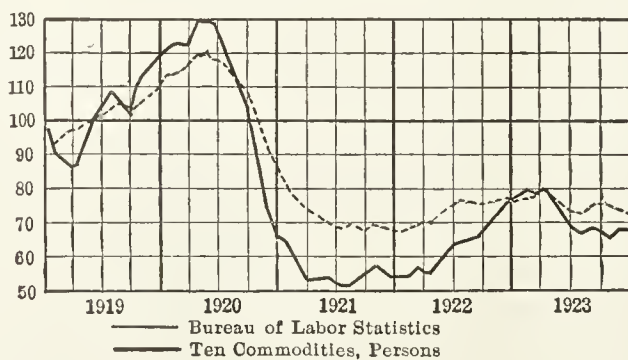
varied nature and important to the industrial life of the country. These commodities respond quickly and sharply to the influences of the business cycle, whereas other commodities often respond sluggishly or uncertainly. The accompanying diagram of this index shows distinct cyclical fluctuations. The chart comparing the ten commodity index with the 404 commodity index of the Bureau of Labor Statistics shows the greater amplitude and sensitiveness of the former index.

TEN COMMODITY PRICE INDEX



COMPARISON OF PRICE INDEXES *

(Average for 1919 = 100)



* See *Harvard Review of Economic Statistics*, January, 1924, p. 9.

Although, as these price indexes suggest, all prices are affected in some way by cyclical movements, not all are affected in the same way. We find not one price cycle, but a complex array of many price cycles. Different markets, different commodities, different businesses, each show different price fluctuations. Prices which move relatively late and relatively slow are said to "lag" in the cyclical fluctuations. Certain price lags are typical and characteristic. Retail prices tend to lag behind wholesale. Prices of consumers' goods tend to lag behind prices of producers' goods. Prices of manufactured goods tend to lag behind prices of raw materials. Prices of raw materials in general tend to lag behind prices of one special group of such materials, namely, mineral products. Prices of farm products show no definite cyclical lag, since they are fundamentally governed by crop and weather conditions.

Price lags of individual commodities can be measured by comparing percentages of rise and dates of maximum rise in different industries. The following table presents such a comparison for a number of commodities for the period beginning with 1913 and ending with the crisis of 1920:

INDIVIDUAL PRICE FLUCTUATIONS

Commodity	Percentage Rise from 1913 to Highest Point	Month in Which Highest Point Was Reached	Month in Which Lowest Point Was Reached After Crisis
Cotton seed oil	274.2	July, 1919	April, 1921
Hides, calf skins	390.5	August	March
Copper ingots	45.0	August	August
India rubber	—40.2	November	March, 1922
Raw silk	366.4	January, 1920	July, 1920
Sugar, granulated	426.0	May	January, 1922
Women's dress goods	152.6	August	November, 1921
Coke, Connellsville	537.0	August	December
Pig iron, Bessemer	195.0	September	February, 1922
Coal, bituminous	223.0	December	February
Person's 10 commodities ...	....	June, 1920	July, 1921
Bureau of Labor Statistics, all commodities	147.0	May, 1920	July, 1921

The extreme inequality in percentage of rise is found in a comparison of rubber and coke. Rubber declined 40 per cent after 1913 whereas coke increased 537 per cent. Extreme differences in dates of maximum rise and fall are obvious. Some commodities began to fall in July, 1919, while others continued to rise for nearly a year thereafter. A great many individual prices had been falling for ten months before the average of all prices began its fall in May, 1920. The conspicuous and cardinal feature of these cyclical price movements is their glaring inequalities and non-uniformities. It is these inequalities which breed maladjustments between various industries and which lead to a general unbalancing of price relationships. Cycles of cost prices are in discord with cycles of selling prices. The different rates of rising prices cause rising profits for a while, but eventually the price inequalities prove their own undoing by causing the encroachment of costs upon selling values and the dissolution of profits and prosperity.

The precise nature of the cause and effect relationships involved in these price fluctuations is well summarized by Persons in the following generalization: "As a period of prosperity develops, the costs of materials regularly outrun the prices of finished goods; the values of manufacturers' inventories of materials increase disproportionately to selling prices and to business done, even with a constant physical volume of

stocks and production; paper profits accumulate; the attempt to realize these profits through increased selling prices always fails ultimately; a decline in the costs of materials then occurs and is followed by general price declines and business recession; costs of materials decline more drastically than do selling prices; at these new costs and selling prices, manufacture again becomes profitable; business revives and the cycle is complete.”⁴

(3) *The Prices of the Use of Capital—Interest Rates.* Interest is itself a price,—a price paid for the use of capital. As a price, interest shows a distinct lag with reference to other prices. In general interest rates lag behind commodity prices, both on the fall and on the rise. They are slower to start upward during recovery than commodity prices, slower to reach their maximum than commodity prices at the height of prosperity, slower to start their downward movement, and slower to reach their low point during depression. The interest lag is an important cause of maladjustments between costs and selling prices, and therefore an important cause of the downfall of profits and prosperity.

Three aspects of interest rates in the business cycle appear to be of paramount significance: first, their influence on costs of doing business; second, their influence on price inflation and price deflation; third, their influence on all property values which rest upon capitalization of income.

To grasp the significance of interest as a business cost, it is necessary to bear in mind that modern business is a régime of capitalism. Capitalism rests at all points upon credit and the use of capital. The cost of this use of capital is a crucial factor in all business calculations. Since interest is this cost factor, interest is a most powerful regulator of the business use of capital. Low interest cost is a powerful stimulus to business to use more capital and expand activities; high interest cost is a powerful restraint upon the further use of capital and business expansion. The cost of the use of capital is, therefore, one of the main restrictive and stimulating forces in the whole business cycle.

This influence of interest as a cost arises directly from the unequal rates of movement of interest rates and commodity prices. At some stages of the business cycle, this discrepancy between rates and prices is conducive to prosperity, but eventually it contributes to the maladjustments which destroy prosperity. During recovery, interest rates are low while prices of goods are rising. During the earlier stages of prosperity, interest rates rise, but commodity prices rise faster. Consequently, increases in interest costs are more than compensated by high selling prices of goods. During these phases of the cycle, therefore, the lag of interest rates is conducive to prosperity. But as prosperity reaches its advanced stages, the situation changes. Commodity prices reach a limit and are threatened with a decline. But interest rates, instead of coming to a halt simultaneously, continue to rise. They augment business costs, but business can no longer offset the burden by jacking-up selling prices. As this tension becomes acute, the margin

⁴ *Review of Economic Statistics*, 1921, p. 356.

of profits is seriously cut into, and there ensues the liquidation of loans and commodities which has previously been described as characteristic of crisis. Commodity prices fall early in the crisis, whereas interest rates usually remain high until the crisis is well past. The relationship forces retrenchment in business, conservatism, and sub-normal business activity. When interest rates finally reach bottom during depression, commodity prices have already begun to climb again. With costs low and selling prices rising, there is a strong incentive to business to borrow and expand again. The lag of interest rates then restores to business the life which at a former stage it had taken away.

The cost of capital use is particularly important in one special group of industries, namely, those which are devoted to the making of capital goods. The construction industries, the industries supplying building materials, the industries manufacturing machinery and transportation equipment, bear the brunt of the effect of changing interest costs. High costs of capital are quickly reflected in lessened orders for new building and equipment, and these industries are among the first to feel the check upon expansion. Low costs of capital are reflected in expanding orders for new building and equipment, and these industries are among the first to feel the pulse of recovery. Consequently, the construction industries show an uncommonly wide amplitude of cyclical movement and an unusual sensitivity to the changing costs of capital.

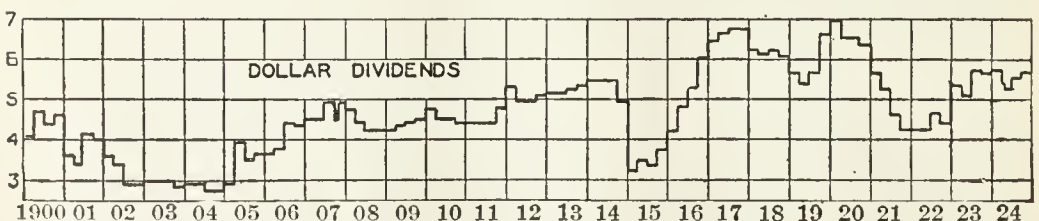
In addition to the cost aspect, interest must be considered from the standpoint of its influence on inflation and deflation of commodity prices. Prices cannot continue to rise for any length of time or to any marked degree unless the supply of money and credit in active use increases. This proposition reverts to the doctrine of the relation between prices and the quantity of media of exchange which has been discussed in a separate chapter. The inflation of prices cannot become serious unless it is accompanied by a sharp expansion of money and credit. This much practically all economists are agreed upon. Interest rates are of significance because they exert an influence over the quantity of money and credit put into circulation. Low interest, or cheap money, encourages borrowing on a large scale. It thereby increases the supply of purchasing power in circulation. It stimulates an increase in the quantity of media of exchange. By so doing, it makes possible drastic price inflation. To summarize the matter, low interest causes much borrowing; much borrowing causes over-supply of money and credit; such over-supply makes possible price inflation.

But if this is the process of inflation, the reverse is the process of deflation. High interest, or dear money, discourages borrowing. It causes a contraction of loans, and a decrease in the quantity of money and credit in active use. By so doing, high interest checks inflation, and if carried far enough causes positive deflation of prices. Recognizing this influence of interest on volume of credit and price movements, many authorities have advocated that the price level be stabilized by a deliberate manipulation of interest rates for that avowed purpose. A

fuller discussion of this proposal is presented later in the present chapter.

The third aspect of interest influence in the business cycle is concerned with the capitalization of incomes. It is a commonplace of the property markets that property values are based upon earning power. To get the value of a property, it is necessary to capitalize the earnings. By the earnings are meant not merely present income, but anticipated future income. The capitalized value is a resultant of two things, the size of the earnings and the rate of capitalization. Earnings of \$6, if capitalized at 4 per cent, are worth \$150, but if capitalized at 6 per cent, are worth only \$100. The rate of capitalization in effect at any particular time depends upon the prevailing rate of interest at the time. With these facts in mind, we may inquire how capitalized values contribute to the downfall of prosperity. During recovery and prosperity, capitalized values run up to high levels because prospective earnings are great and rates of capitalization are low. This condition is particularly apparent in the stock exchanges, where advances in stock and bond prices register the enhancement of capitalized values. And it is of concern to the banks, because the higher values of securities mean higher possibilities of bank loans backed by such collateral. But in later stages of prosperity, all this changes. Prospects of earnings decline at the same time that interest rates rise, with the result that capitalized values are doubly undermined. The stock and bond markets register the change by a sharp decline in security prices, by bearish movements and general liquidation. The banks respond to the situation by demanding that borrowers add to the shrunken value of the security behind their loans or pay up the loans. There ensues the liquidation of loans characteristic of the financial crisis. The interest changes are, therefore, in large part, responsible for the changes in capitalized values which are interwoven with the business cycle.

(4) *Profits.* The accompanying diagram of dollar dividends on a selected list of industrial stocks suggests the unsteadiness of the net earnings of business.⁵ Dividends alone are not a complete measure of profits, partly for the reason that not all of current profits are disbursed to stockholders, and partly for the reason that dividends are often disbursed from reserves accumulated from past profits. Nevertheless, with this reservation, dividends on industrial common stock do roughly reflect the fundamental unsteadiness of profits.



⁵ Dow Jones' list of 12 industrial stocks, 1900 to 1914, and of 20 industrial common stocks, 1915 to 1924. See Cleveland Trust Company *Monthly Bulletin*, 1925.

But more significant than the unsteadiness of average profits is the marked inequality of this unsteadiness in different industries. This inequality appears in the following table of profits of corporations for the years 1919, 1920, 1921.⁶

RATE OF NET CORPORATE INCOME TO INVESTED CAPITAL

Class of Industry	1919	1920	1921
Agriculture	12.2	11.7	12.6
Mining and quarrying	10.2	14.4	6.2
Manufacturing	19.9	14.6	13.0
Construction	25.6	17.9	16.1
Transportation	6.4	6.3	7.8
Trade	19.9	15.7	15.8
Public service, hotels	13.6	16.7	18.2
Finance, insurance	7.9	6.3	9.0
Mixed	10.6	9.0	11.4
In liquidation	5.9	5.8	...
Inactive	7.4	4.5	...
Total	14.1	11.3	11.1

Manufacturing Groups			
Food, liquor, tobacco	24.2	12.9	16.3
Textiles and products	27.9	17.8	17.5
Leather and products	30.3	14.7	16.8
Rubber and products	18.8	6.6	15.6
Lumber and products	17.0	17.9	13.5
Paper, pulp and products	17.4	28.7	13.5
Printing and publishing	19.8	22.1	20.8
Chemical and allied lines	16.0	16.0	17.5
Stone, clay, glass	14.3	17.0	14.5
Metals and products	17.7	11.9	8.2
All other	19.8	14.4	12.5

⁶ Based upon Income and Corporation Tax Statistics of the Treasury Department of the United States. In this connection, it is important to note the estimates of profits made by the National Bureau of Economic Research for 1910 to 1920 in *Income in the United States*, Volume II, p. 324. The declines of 1914 and 1920 are striking.

Year	(Millions of Dollars)		
	Net Income of All Corporations	Estimated Total Dividends	Estimated Corporation Surplus
1910	\$3,436	\$2,020	\$1,416
1911	3,219	2,144	1,075
1912	3,819	2,746	1,073
1913	4,000	2,780	1,220
1914	2,800	2,181	619
1915	4,230	2,377	1,853
1916	7,937	3,389	4,548
1917	7,958	3,995	3,963
1918	4,513	2,568	1,945
1919	6,240	3,937	2,303
1920	3,500	2,275	1,225

The average decline of profits from 1919 to 1921 was from 14.1 to 11.1, or a drop of one-fifth. During this period, profits in some industries actually increased. Profits in other industries, such as leather and metals, declined about one-half. No two groups of industries showed quite the same amount of decline. Not only did the amount of decline differ greatly, but also the time when the decline set in differed. Many industries increased their profits during 1920 and fell off in 1921 while many others fell off in 1920 and increased again in 1921. These acute differences in both amount and time of profit fluctuations reflect the multitude of maladjustments which strike different industries with different degrees of severity, and which underlie the entire mass of phenomena which we conveniently style the business cycle.⁷

As explained previously in this chapter, profits move in cycles because of the differences between the fluctuations of cost factors, such as wages, interest, raw materials, and the fluctuations of selling price factors. For many concerns, these unequal fluctuations of cost and selling price factors spell not only a falling off in profits but a definite loss which forces their insolvency. Business failures, reflecting the negative of profits, undergo a cyclical movement. The pronounced increase in business failures during the depressions centering about 1914 and 1921 appears in the following tabulation of Dun's reports:

INDEXES OF BUSINESS FAILURES (1913 = 100)

Year	Total Commercial		Manufacturing Establishments	
	Liabilities	Firms	Liabilities	Firms
1913	100	100	100	100
1914	131	114	109	109
1915	110	138	90	121
1916	72	106	59	99
1917	67	86	64	87
1918	60	70	59	65
1919	41	40	41	44
1920	108	55	103	62
1921	229	123	188	106
1922	228	148	173	134
1923	197	117	226	117

The relationship of profit fluctuations to each separate factor in the business process is traced in connection with the analysis of these

⁷ A study by the Standard Statistics Company of profits of 934 companies in 37 different lines of business, shows the number of dollars earned on the average on each \$100 of capital as follows: 1921, \$3.50; 1922, \$5.75; 1923, \$6.75. The contrast is clear between depression earnings in 1921 and the prosperity earnings of the subsequent years.

factors singly. It is sufficient at this point to reëmphasize that profits are the central clue in the analysis of all factors, that business waxes and wanes with the fluctuations of profits, and that each independent business factor influences the business cycle mainly in so far as it influences the profits factor.

(5) *Credit and Money.* Certain authorities have attributed the fluctuations of business exclusively and wholly to the alternate expansion and contraction of bank credit. In their interpretation, the business cycle is merely a credit cycle. Although this view of the importance of credit appears to overemphasize a single factor, nevertheless the fundamental importance of credit is recognized by all students of business change and movement. Cheap credit feeds and stimulates business expansion. Exhausted and expensive credit starves prosperity and aids in bringing it to a close. The banks, as the main dispensers of credit, hold the tactical position in the financial aspects of the business cycle, and especially at a time of crisis or panic, the banks are looked upon as the sole source of rescue and salvation.

In analysis of the part played by money and credit, we may first of all note three financial ratios of basic significance. These are: the reserves ratio, the ratio of loans to deposits, and the ratio of volume of money and credit to physical volume of production and trade.

The reserves ratio is affected either by a change in the supply of reserves or by a change in the amount of outstanding bank credit. The supply of reserves tends to be depleted during high prosperity by the tendency of the people to hold more cash in hand and by the tendency toward export of gold to foreign countries. Gold exports are the result of the unfavorable balance of trade which is induced by the rising price scale characteristic of prosperity and expansion.⁸ Where the export of gold threatens to become severe, it is common for the central bank to take steps to protect and conserve the reserves, by raising the official discount rates or other suitable measures.

The other side of the reserves ratio is the volume of bank credit outstanding. In business practice, the ratio which is closely watched is not that of the total reserves to the total loans for all banks in the country but that of the reserves to the loans of the central bank or banks. In the United States, the reserves ratio of the Federal Reserve banks is of primary importance. Whenever there is an over-expansion of loans by the member banks, this fact is reflected in an increase in member bank discounts and of Federal Reserve notes issued to member bank accounts. Hence, the extraordinary and the unusual in member bank credit is directly reflected in the notes and discounts of the Federal Reserve banks. The weekly statement of the Federal Reserve banks includes the following item: "Ratio of total reserves to deposit and Federal Reserve note liabilities combined." The legal minimum ratio is 40 per cent against note issue and 35 per cent against deposits. The actual ratio index is quoted, for convenience and simplification, as a

⁸ For explanation of the chain of cause and effect, see pp. 624-630.

combination of these two ratios. When the combined ratio is around 60 per cent, business usually considers that banking and credit is in a sound and healthy condition. Common experience and judgment in most countries before the World War had settled in a rough and general way upon this approximate ratio as normal. Under stress of business expansion, note issue and deposits greatly increase, and the combined ratio becomes thinner. When it approaches 40 per cent, the banks sense a state of danger, and usually attempt to curb any further credit expansion by higher rates of interest and careful selective restriction of bank loans.

The following table of reserve ratios since the inception of the Federal Reserve system shows the general range of fluctuation. The dangerous low point of reserves during the crisis of 1920 is obvious, as is also the extraordinary high point of reserves in 1924, due largely to the accumulated imports of gold.

Year	Federal Reserve Combined Ratio
1915	94.6
1916	83.5
1917	75.6
1918	57.0
1919	50.2
1920	43.5
1921	61.4
1922	77.5
1923	76.4
1924	81.0

In addition to the reserves ratio, the ratio of loans to deposits is of importance. As explained in the chapter on banking, banks are limited in the amount of loans which they can safely make by the amount of deposits which business men leave in their accounts with the banks. If business draws out heavily from accounts at the banks, and at the same time borrows in increasing volume, the banks find themselves in a precarious position. Loans become unhealthy because they are out of proportion to deposits. The ratio of loans to deposits rises during prosperity and reaches a danger point during crisis. The ratio sinks during depression to a point of conservative safety. A high ratio of loans to deposits is chiefly significant as a warning against over-expansion. The excess of loans over deposits during a business boom is a signal for caution and retrenchment in bank credit policy and in business calculation generally.

A third type of ratio, that between volume of credit and physical volume of production and trade, has come into prominence especially since the World War. Indexes of production, of stocks of goods in dealers' hands, and of retail and wholesale trade offer a reasonably accurate measurement of the physical volume of business. When these indexes show that production is already at capacity, and that labor and plant are fully employed, it is obvious to the banks that any further

additions to credit must result in speculation, inflation, and an unhealthy boom leading rapidly to a crisis. Credit expansion which cannot increase physical production is unwarranted and dangerous. The ratio between credit volume and production volume indicates, therefore, whether prosperity is entering upon a career of unhealthy boom or still rests upon firm and sound foundations.

Methods for measuring the volume of credit involve statistical records of various financial items. Chief among these are total bank loans and investments, total bank clearings, total debits to individual accounts, and total notes in circulation. Each of these items has individual peculiarities, but all are alike in the one fundamental respect that they offer an index of the expansion of money and credit. They make possible a quantitative comparison between volume of credit and volume of production.

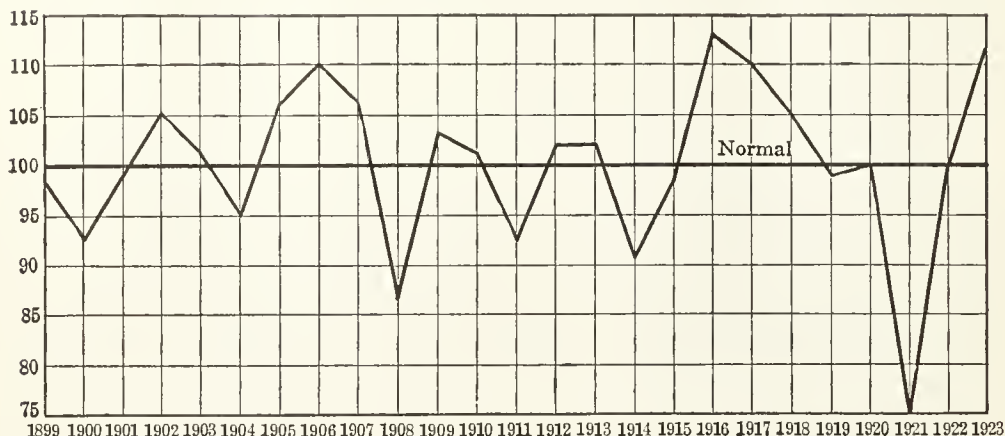
In further analysis of the part played by money and credit, we may note two price factors of basic importance. These are: the price of money, and the general price level. The former is the rate of interest; the latter is the value or purchasing power of money in terms of commodities. The rate of interest affects business directly by affecting the cost to business of commercial and investment loans. High interest tends to check business and low interest to stimulate it. The rate of interest affects business indirectly by affecting the general price level of commodities. High interest contracts the quantity of money and credit and looks toward deflation. Low interest expands the quantity of money and credit and looks toward inflation. Because the bank rate thus affects both the costs of loans and the trend of the price level, the banks are in a position of strategic importance. Sound banking policy with reference to the price of money and to the general price level is a most important feature of all attempts to mitigate the severities of the business cycle. What the banks can do with reference to these two price factors must underlie whatever policies of control and stabilization of business are to be undertaken.

(6) *The Physical Volume of Production.* Most of the foregoing factors are analyzed in terms of prices. Wherever prices have to be used, there is this difficulty, that changes in the values of things may be taking place without any corresponding changes in their physical quantity. It is, therefore, useful to note the fluctuations which take place in the purely physical volume of production without regard to changing values and prices.

The accompanying chart shows the sharp fluctuations in physical volume of manufacture above and below the estimated line of normal growth. The ups and downs of manufacture reflect clearly the major movements of the business cycle. The low level of 1921 and the climb back above normal in 1923 are obvious.

Important though manufacture is, it nevertheless is only one branch of economic activity. To obtain a view of economic output in the aggregate, it is necessary to combine with manufacture the output of

FLUCTUATION OF PHYSICAL VOLUME OF MANUFACTURE ABOVE AND BELOW ESTIMATED NORMAL *



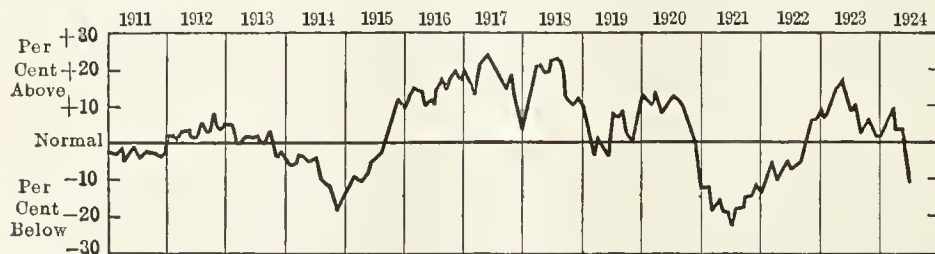
* Adjusted indexes as compiled by E. E. Day, *Harvard Review of Economic Statistics*, Volume VI, No. 3, July, 1924, p. 194.

agriculture, mining, trade, finance, and of all other types of productive enterprise. For this purpose, indexes of physical volume of production for the nation as a whole have been prepared by various statisticians.⁹ The conclusion warranted by these index numbers has been stated as follows by W. C. Mitchell and W. I. King: "The broad result is that the worst years run something like 15 to 20 per cent behind the best and something like 8 to 12 per cent behind the moderately good years."¹⁰ This deficiency represents the tangible and material economic loss to the nation from business depression. The business cycle involves a substantial loss in the real income of the nation, and consequently a restriction upon all endeavors to raise the general standard of well-being.¹¹

⁹ E. E. Day, *Review of Economic Statistics*, Harvard University Committee on Economic Research, Volume 3, No. 1, Jan., 1921, p. 20; W. W. Stewart, *American Economic Review*, March, 1921, p. 68; National Bureau of Economic Research, *Income in the United States*, I, p. 79; Carl Snyder, Federal Reserve Bank of New York.

¹⁰ Committee on Unemployment, *Business Cycles and Unemployment*, p. 39.

¹¹ The following index of physical volume of business is valuable as measuring the major cyclical fluctuations:



Index of physical volume of trade, adjusted for annual growth and seasonal change, and expressed as a per cent above and below estimated normal. Data computed by Harvard Committee on Economic Research to "show cyclical fluctuations in the physical volume of trade, transportation, manufacture, and industrial employment combined." See *Review of Economic Statistics*, September, 1920, and January, 1921.

In addition to index numbers of production in major branches of industry or of total production for the whole country, index numbers have been prepared for the more important single lines of production. For practical business purposes, these individual indexes of production are probably of greater value than the more general indexes. They make possible a comparison between the actual current rate of production at any time with the estimated normal rate for that period. This normal rate is estimated from the average rate of growth over a period of years and from the average month to month seasonal variation. If the rate of current production in any given line is above normal, knowledge of that fact enables business to avoid over-extension of equipment and over-expansion of production. This type of knowledge is a primary necessity if we are ever to moderate that general unbalancing and mal-adjustment of production which has always been associated with the breakdown of prosperity. By use of such knowledge, it is possible to sustain a more even pace in the different lines of industry. It is possible to know whether we are producing very much more pig iron or copper or rubber than the normal need, and therefore, to know in what lines there is too little expansion and in what lines there is too rapid expansion.

A form of differentiation of data between industries which is particularly important is differentiation between production of consumers' goods and production of producers' capital goods. In general, the fluctuations in manufacture of basic materials, machinery, and industrial equipment are more severe than those in manufacture of consumers' goods. The more violent fluctuations of industries making fixed capital goods are a main feature of the unbalancing of production which is characteristic of the breakdown of prosperity. The charts on page 600 show the wide fluctuations in pig iron production, a major producers' good, and a comparison between producers' basic materials and consumers' goods. Pig iron fluctuations are similar in kind to, but more extreme in degree than, the fluctuations of producers' goods in general.

(7) *The Volume of Consumption.* The available data on retail trade indicate that the common notion of a "consumers' strike" is a popular error. In the depression of 1920-1921, the sales of department stores, drug stores, grocery stores, and cigar stores were well sustained until the latter half of 1920.¹² This was after wholesale prices had broken and after physical production in leading lines had begun its downward course. The depression was well under way before the main branches of retail trade fell off.¹³ The consumers' strike followed, but did not initiate the downfall of prosperity.

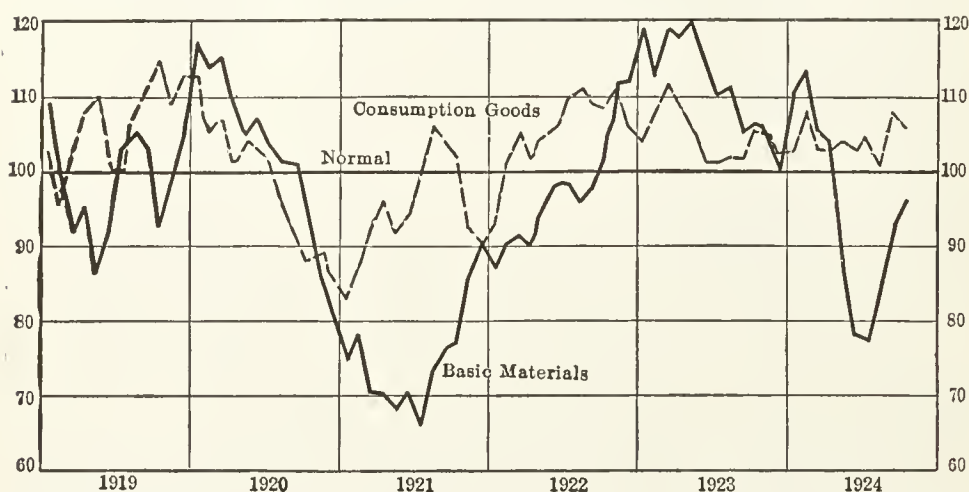
The term "consumers' strike" is loose and misleading. In the sense of a supposed definite stoppage of retail buying, the implication of the

¹² Mail-order sales began a decline in February, 1920, but even this decline came after the fall in production of both consumers' and producers' goods had begun.

¹³ H. B. Vanderblue, *Problems in Business Economics*, pp. 63-68, 614; L. B. Mann, *Journal of the American Statistical Association*, June, 1922, pp. 255-258.

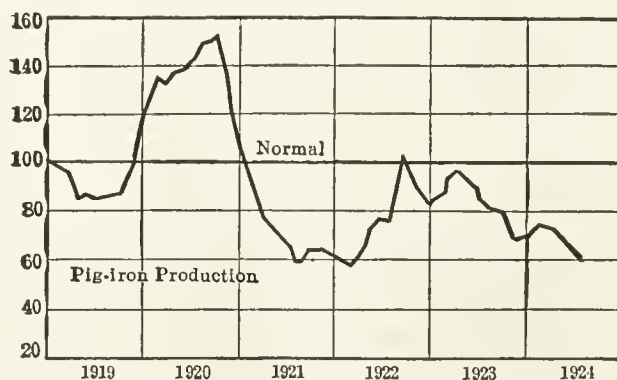
term is contrary to the facts. What really happens appears to be substantially as follows:¹⁴ Manufacture proceeds more rapidly during a period of activity than physical volume of consumption. Not that consumption fails to increase. It does increase, but not so rapidly as factory

COMPARISON OF VOLUME OF MANUFACTURE OF CONSUMERS' GOODS AND PRODUCERS' BASIC MATERIALS WITH ESTIMATED NORMAL *



* Adjusted indexes as compiled by the Harvard University Committee on Economic Research, in *Harvard Economic Service*, Volume III, No. 52, Dec. 27, 1924, p. 377.

FIG IRON PRODUCTION COMPARED WITH ESTIMATED NORMAL *



* Adjusted indexes, *ibid.*, Volume III, No. 35, Aug. 30, 1924, p. 250.

output. The maladjustment then is a matter of maladjustment between two unequal rates of increase, the swift increase of manufacture and the slow increase of consumption. Supply outruns demand at current prices, with the resulting period of liquidation of stocks and readjustment of prices.

¹⁴ *The Problem of Business Forecasting*, edited by Warren M. Persons, Chapter II, by Willford I. King, Chapter III, by W. Randolph Burgess; *Federal Reserve Bulletin*, Jan., 1923, p. 104.

This lack of coördination between consumer buying and factory production has received a number of explanations. Some authorities have attributed it to the lag of wage increases behind price increases, with the consequent lag of purchasing power which wages represent. According to this view, a more liberal wage policy pursued during prosperity would put labor in possession of the wherewithal to make retail demand effective, and would insure that goods would be taken off the markets as fast as manufacture puts them on the market. Other authorities have attributed the lag of consumption to the failure of corporations to disburse profits as rapidly as they are earned. Various policies of reserves and surpluses mean a withholding of earnings from the hands of stockholders and hence a diminution of their purchasing power in consumers' markets. Other authorities have attributed the consumption lag to various theories of over-production due to the inherent super-efficiency of machine methods of manufacture; of over-saving due to excessive capital accumulation during prosperity; and of under-consumption due to an unjust distribution of income. None of these explanations fully accounts for the maladjustment. Analysis of the business cycle at this point becomes somewhat vague and indecisive, for the reason that statistical data have not been carried far enough to yield definite conclusions. The fact that consumer buying is outrun by factory output at current prices appears to be established, but the explanation of the fact and the means of remedy require further research.

In addition to the lag of consumption behind manufacture, there is a marked difference in the amplitude of fluctuation of the two factors. A striking feature of retail trade is its relative stability. In general, retail trade shows a steady volume, with slight interruption due to business movements. The amplitude of fluctuations in physical volume of consumption is much less than that in physical volume of manufacture.¹⁵ In consequence of this difference, there appear alternate periods of excess and deficit in the stocks of goods on hand. At times of activity and forward buying among dealers, inventories accumulate in the hands of manufacturers, wholesalers and retailers. At times of dullness and hand-to-mouth buying among dealers, stocks become exhausted and shortages appear. The total accumulation of stocks of each line of product thus varies from phase to phase of the business cycle. When manufacture overflows with new production an already overstocked market, the inevitable result is costly and wasteful liquidation. Control over stocks and inventories is, therefore, essential to a better adjustment between the relatively mild fluctuations of consumption and the relatively violent fluctuations of manufacture.

To summarize, two significant factors in volume of consumption are noted: first, a lag of consumption behind manufacture in leading lines;

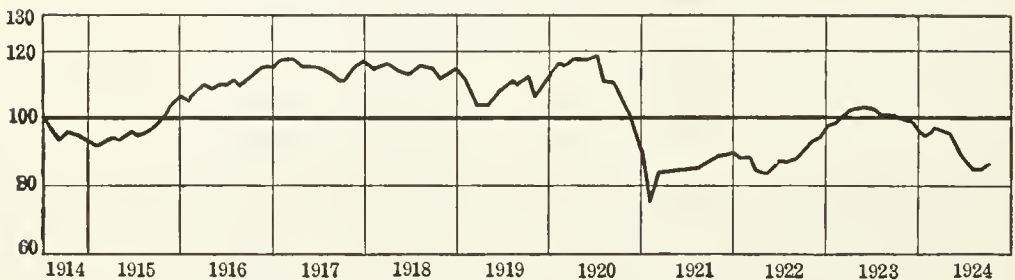
¹⁵ A significant bit of evidence in this connection is the fact that the maximum cyclical decline in the number of employees in retail establishments in 1920-1921 was under 3 per cent as compared with 14 per cent for all industry and 26 per cent for factories. See W. I. King, *Employment, Hours and Earnings in Prosperity and Depression*, p. 30.

second, a discrepancy in amplitude of fluctuation between retail trade and manufacture, accompanied by alternate over-stocks and shortages of goods, and consequent price liquidations and readjustments.

(8) *The Volume of Unemployment.* An index of employment is calculated to show changes in the *relative intensity* of employment between two points of time, without necessarily measuring the total *volume* of employment or unemployment. What is measured directly is simply the *fluctuations* of employment. From these fluctuations, it is easy to infer the fluctuations in unemployment. But the absolute volume of unemployment is not indicated. When the President's Conference on Unemployment set out to ascertain the absolute volume of unemployment in 1921, the estimates were so uncertain that they ranged all the way from two to six millions. It would be useful to have exact knowledge on the absolute volume of unemployment, but such exactitude has not as yet been attained. The main step in this direction has been the measurement of "fluctuations in employment" between various periods of time. The accompanying diagram shows such an index of employment in factories for the period from 1914 to 1924. *Relative changes* in employment are the factors here measured.

GENERAL INDEX OF EMPLOYMENT IN FACTORIES *

(Average Monthly Employment 1923 = 100)



* From data compiled by the United States Bureau of Labor Statistics, representing weighted indexes based upon the number of wage earners in the respective industries in 1919. See *Monthly Labor Review*, April, 1924, pp. 129-132.

The cyclical decline of employment varies widely from industry to industry. This variation, as shown in the table on page 603, has been measured by W. I. King for the 1920-1921 period, taking as the form of measurement the "total hours actually worked by all employees."¹⁶

The range of decline was least for retail trade and greatest for metal manufactures. Variation in decline of employment varied with the size of establishments as well as with the type of industry. The greatest stability of employment existed among small establishments, and the greatest fluctuation among large establishments.

The indexes of employment are valuable for a number of purposes. They reflect the general course of production and thus supplement the

¹⁶ W. I. King, *Employment, Hours, and Earnings in Prosperity and Depression*, pp. 55-59.

figures on industrial activity. They forecast changes in the buying power of a large body of consumers, since the amount of purchasing power flowing into the hands of wage earners is conditioned directly by the state of employment. They are a useful guide to banking policy and the credit situation, by showing to what extent the physical resources of production are being employed by business men seeking bank loans. They indicate whether the labor market is over-supplied or under-supplied with potential workers, and so help in formulating wage and employment policies in industry. Finally, they indicate the fluctuations in social well-being associated with the business cycle, such as poverty, crime, suicide, and migration.

	Maximum Cyclical Decline (per cent)
All industries	16.50
Agriculture	3.18
Extraction of minerals	29.66
Building and construction	18.92
Finance	7.14
Steam railways	29.68
Wholesale trade	5.64
Retail trade	2.75
All factories	29.97
Metals	50.25
Paper and printing	10.65
All industries having under 21 employees	3.08
All industries having 21 to 100 employees	13.84
All industries having over 100 employees	28.23

Particularly because of the heavy social cost and distress associated with cyclical unemployment, much attention has been given to the means for prevention of unemployment. The concrete proposals toward this end are discussed later in the present chapter. The necessity for stabilizing employment is urgent. In the past, the insecurity of the job has been a primary source of demoralization and suffering in the ranks of labor. It has been a main cause of discontent, ill-will and bitterness in industrial relations. It has been a constant stimulus to fear, worry, humiliation, and resentment among workers' families. To establish a reasonable degree of security in the job, which represents the laborers' only chance to earn a living, is a problem pressing for solution.

Some Theories of Business Cycles.—A wide variety of theories have appeared in explanation of business oscillations. The following list is by no means exhaustive, and the theories mentioned represent considerable overlapping. However, the enumeration does separate the main types of theories and the points of view which they specially emphasize.

(a) Crop cycles due to periodic variations of rainfall and temperature have been assigned as the cause of variations in all other lines of enterprise, such as manufacture, trade, and finance. Statisticians have made out a good case for climatic variation, but even if this were

definitely conceded as the fact, it still would not follow that all other enterprise goes through cyclical variation corresponding to crop variation. The business cycle itself shows no correlation with cycles of climate.

(b) Politicians have always attributed hard times to the follies and crimes of the party of the opposition. The economist finds no substantiation in fact for the political explanation of cycles. Instead, the economist finds that business fluctuates in spite of, or independently of, the currents of politics. That the political theory still has a powerful hold on the popular imagination is apparent from the campaign speeches of the average political candidate. His own party is said to be the cause of all prosperity; the opposition party the cause of all depression. This popular fallacy has, indeed, led to the naming of many crises after certain political leaders,—for instance, the “Cleveland panic of 1893,” the “Bryan panic of 1896,” and the “Roosevelt panic of 1907.” Both the political and climatic theories are alike in this, that they attribute business changes to *external* causes. In this respect, they differ from the main trend of current economic opinion, which finds the causes in the *internal* conditions of business itself. What these internal conditions are, will appear from the other theories to be mentioned.

(c) A psychological theory assumes a normal law of action and reaction according to which waves of over-confidence and optimism alternate with waves of underconfidence and pessimism. That psychological variations occur, no one will deny, but the important thing is to find why they occur. This query is not answered by the postulation of a vague law of action and reaction, but by observing the changes in the prospect of profits. Optimism is chiefly an expectation of profits, and pessimism is chiefly a fear of no profits.

(d) Various theories of over-production and under-consumption have been presented. The theory that over-production in general may occur is denied by the doctrine that human wants are indefinitely extensible. However, the main modern theory of over-production is that there occurs such an excess of production that goods cannot be sold at a profit. Over-production fatal to profits undoubtedly occurs in many individual lines, but whether it occurs for industry in the aggregate is an open question. In particular, over-production of fixed capital and of producers' goods is declared to be the cause of cycles. We do know that the more violent fluctuations of production occur in those lines devoted to producers' goods, but it does not appear likely that this is the initial factor in the breakdown of prosperity. The over-production of producers' goods has to be considered in the light of its connections with the many other factors operative in business fluctuations.

(e) Maladjustment or unbalancing of production and prices is a special application of over-production theories. Over-expansion of certain industries and under-expansion of others are known to characterize many of the severe maladjustments which occur within the business cycle, and are an important part, although not the whole part, of any adequate account of business ups and downs.

(f) Socialistic theory, as advanced by Karl Marx and others, teaches that the laborer receives as wages only a fraction of his product. The balance is retained by the capitalist, and is "surplus product." Since the mass of wage earners are thus deprived of the full value of their product, they lack the purchasing power wherewith to absorb the goods that capitalism turns out. Consequently, so the doctrine runs, the market becomes glutted and crisis ensues. The weakness of this theory lies in the weakness of the socialistic theory of value itself, which declares that labor is the sole producer of value, and therefore is entitled to the whole product.

(g) Banking theories attribute business fluctuations to the excessive elasticity of money and credit. Excessive expansion of credit and money is given as the cause of inflation, and excessive contraction of credit and money as the cause of deflation. A special application of financial theory is made by certain authorities who see the cause of business movements in the lag of interest rates behind price changes. The interest-lag theory, like other variations of financial theories, stresses an important part of the phenomenon of business fluctuations, but none of these theories contains the sole and exclusive account of cycles. They require to be supplemented by the many other factors in fluctuations which have been presented.

(h) The profit theory of fluctuations holds that a wide variety of business forces have the combined effect of undermining profit margins during the prosperity phase of business and so of bringing about the downfall of prosperity. Likewise, this theory holds that during the depression phase of business, a wide variety of forces have the combined effect of building up profit margins and so of bringing about the recovery of prosperity. It is the conjuncture of all forces whatsoever upon profits and the prospect of profits which governs the ups and downs of business. This profit theory, consequently, comprehends the forces of crops, politics, psychology, over-production, unbalanced production, labor, money, credit, interest and prices. It comprehends all of these forces, in the sense that such forces one and all affect business fluctuations by first affecting the prospect of profits. *The profits cycle is the business cycle.*

The Stabilization of Business.—Formerly, the extremes of business fluctuations were considered inevitable, but this surrender to fate no longer appears to be necessary. The Federal Reserve system has already developed sufficient control to prevent crises from degenerating into outright panics, and there is much reason to hope that the severity of crises can be lessened materially by proper measures of control. Plans of stabilization do not contemplate a static and unprogressive condition of business, but rather a state of healthy growth with ups and downs of moderate proportions. It is not proposed to put business in a strait-jacket, but to prevent the excesses which have occurred in the past.

The more constructive of such stabilizing plans aim at prevention of extreme fluctuations rather than mere alleviation after they have oc-

curred. *Mainly, stabilization is prevention.* The questions at issue are: How to prevent excessive price inflation or deflation? How to prevent production from running out of coördination with consumption? How to prevent the maladjustment and unbalancing of different lines of production? How to prevent unemployment? Some of the plans for prevention may here be stated in brief outline.

(1) *Banking Policy.* Bank policies are fundamental in any effort at stabilization. These policies may be considered under two heads: what the individual banks can do, and what the official banks can do. The individual banks can do much to prevent the excesses of boom and inflation by the scrutiny which they give to the *quality* of bank loans during the period of rising prosperity. One concrete means of applying a quality restriction on credit expansion is insistence upon a higher than usual ratio between the current assets and current liabilities of borrowers during active expansion. The more or less customary ratio of two to one may be sufficient during normal times, but a ratio of three to one or even better may be desirable when business reaches a point where crisis and liquidation, if it were to occur, would quickly wipe out a large part of current assets. However, no mechanical observation of ratios is alone sufficient. Conservative judgment on the part of bankers generally in selecting loans of prime quality is indispensable to healthy business expansion. The direct voluntary insistence by the thousands of individual bankers the country over upon the highest qualitative tests for all loans is necessary if inflation and boom are to be kept under control. This individual initiative of the bankers acting in concert is a cardinal feature of any broad policy of stabilization.

When the problem is control not merely of the *quality* but also of the *quantity* of credit, the policy of the official banks comes into play. The official agency in the United States is the Federal Reserve Board and banks, and, in most foreign countries, the central bank. The chief weapon of control is the manipulation of the official discount rate. This manipulation rests upon the assumption that business expansion can be checked before it reaches the danger point, by raising the cost of credit through higher discount rates. Likewise, business stagnation can be relieved by cheapening credit through lowering the discount rates.

How to make the official rate *effective* in the general money market has been a main problem in banking policy. Usually, the rate becomes effective by virtue of the fact that individual banks have to turn to the official banks for the extra resources wherewith to meet the unusual needs of their customers during business expansion. If they have to pay the Federal Reserve banks high rates of discount, they must in turn charge high rates to their customers in the business world. Where this factor is not sufficient to make the official rate effective, the official banks may "tighten" the money market by selling in the open market some of the bankers' acceptances or government paper which they have on their hands. And not to be ignored is the purely psychological effect of a rise in discount rates, for banks and business generally take such a rise

as a warning that credit expansion has already entered upon a level of impending danger. The effectiveness of the official rate is not open to serious doubt if the rise of the rate occurs in time.

The question becomes, therefore, what is the right time? What are the signs which indicate that the time has arrived for the Federal Reserve system to apply the brakes to business? Three main tests have been suggested, namely, price levels, reserve ratios, and the state of production and trade. With regard to the first of these, the banks can check undue inflation by raising the discount rate, thereby restricting the volume of credit in use. Conversely, they can avert excessive deflation by a timely lowering of the discount rate. To prevent excessive inflation and deflation is urgently desirable, and this the Reserve banks can do by the discount rates. To go further than this, and endeavor to stabilize prices at a fixed and arbitrary level, is a more drastic proposal. Such a policy would probably require a more precise and complete knowledge of the behavior of prices than we have had at any time in the past. It would require absolute independence from political powers and domination. And it would need to avoid the pitfall of oversimplifying the whole situation by the assumption that control of one, single factor, the price level, would be adequate to control the whole broad field of business factors. Price stabilization is desirable, but progress toward the goal should doubtless be a matter of gradual experiment rather than sudden change.

With regard to the second indicator of the proper time for changes in the discount rate, the reserve ratio has in the past been the cardinal index of credit conditions. Especially before the World War it was true that the reserve ratio enjoyed more prestige and influence in the public mind than any other factor whatsoever. Under post-war conditions, however, the reserve ratio has lost much of its significance for the reason that the supplies of gold reserves have been so abnormally distributed. The banks of the United States could not afford to let credit expand until the minimum reserve ratio was reached, because the huge volume of gold reserves would support altogether too great a castle of credit inflation.

Both price levels and reserve ratios require to be supplemented by a third guide to discount policy, namely, the state of trade and production. When the indexes of physical production, distribution, consumption and employment show that the resources of the country are already fully employed, and further increases in credit cannot possibly increase output but must lead inevitably to inflation and speculation; when it is apparent that production has reached the limits imposed by labor supply, plant capacity, and transportation facilities, the time has arrived for restriction of credit by raising the discount rate.

No one of these guides to bank policy in regulating discount rates is exclusive of the others. All are indispensable and supplement each other.

(2) *Changing the Weight of the Money Unit.* The plan of "the compensated dollar" or "stabilizing the dollar" is advocated by many

authorities, particularly by Irving Fisher. At present, the weight of the dollar is constant, but its value is changing. Under the proposed plan, the weight of the dollar would be changing, but its value would be constant. If the price index showed a tendency to rise, thereby reflecting a fall in the value of the dollar, more gold would be put into the dollar. This loading of the dollar would, so it is claimed, bring its value up to par again. Conversely, if the price index fell and the value of the dollar rose, gold would be taken out of the dollar, with a view to holding its value down to par. This putting in and taking out of gold would not be a matter of recoining gold, since practically all gold fulfills its purpose as reserves in the form of bullion. To keep the gold dollar as a unit from shrinking in value, we would make it grow in weight; and to keep it from growing in value, we would make it shrink in weight. In criticism of this plan, it may be observed that the objective of price stabilization is fundamentally sound, but that the means and methods toward that objective cannot be merely some single mechanical and automatic indicator. The means and methods must include a broad survey of the general credit situation and of the state of production and trade. Price control in itself is a good thing, but by no means the whole thing in business control. Moreover, changing the weight of the money unit is only one means of price control. The manipulation of the discount rate is equally important, and any attempt at price control without adequate regulation of discount rates would encounter grave obstacles. With these reservations, it may be concluded that the plan is sound in economic principle if operated in right association with other fundamental plans of business control. Certainly it is of urgent importance that the measuring stick of value be made a constant and stable unit instead of the variable unit which it always has been.

(3) *The Planning of Production and Trade.* However much credit and prices may be regulated, such regulation does not dispense with the need for control of production and trade directly by the business men themselves. This control rests mainly upon the voluntary coöperation of business men in collecting and interpreting fundamental data. The science of statistics is particularly applicable to such direct control of business. Statistics of output, of stocks of goods on hand, of the rate at which transportation facilities are moving goods, and of the volume of goods being taken by consumers in retail markets, are indispensable. In the use of such statistics, one concept in particular is necessary as a thinking tool. This concept is the *normal*. As a matter of calculation, the *normal* is an estimate of what the volume of business would be as a result of the average rate of growth over a period of years and as a result of the usual seasonal swing of business from month to month. The normal, then, is what corresponds with a curve of the rate of growth and the rate of seasonal swing. The actual volume of business deviates above or below this normal, and this deviation is for the most part a measure of the cyclical fluctuation of business. By finding how far each item of production and trade is above or below its estimated normal, it

is possible to measure the position of each line of business in the broad current of business fluctuations. This device of comparison with normal is a most valuable guide in averting maladjustment and unbalancing of production, and breakdown of coördination between consumption and output.

In addition to this statistical coördination of production and marketing, business men can control business by attempting to control costs and efficiency. A proper use of modern cost accounting makes possible information on the rate at which unit costs of production are increasing and on the exact factor in production which is responsible for the increase. Upon knowledge of cost trends may be built policies of labor administration, scientific management, industrial engineering, and technical research. Proper use of cost accounting data helps to avert that general encroachment of costs upon profits which, as previous analysis has abundantly emphasized, is the very heart and center of business oscillations.

A study of control by individual producers further leads to the separation of one particular branch of production—the construction of buildings, plant, equipment, and producers' goods—from the general mass of production. The tendency has always been to bunch new construction and making of new industrial equipment into the period of active boom, with a resulting over-extension of capital equipment at the very time when prosperity is almost at an end and when therefore the new capital equipment constitutes an enormous overhead burden on industry. The capital in this case is purchased at top-notch prices and construction is carried on at the time of maximum costs of labor, materials, and loans. It is proposed that this policy of the past be modified. Business may build up reserves during prosperous years to be spent in construction later on when other business is dull. Laying out extensions of plant and equipment ahead of immediate requirements with the intention of carrying them out during slack times and low prices, would go far toward stabilizing construction industries. Private profit, from the long view rather than the short, stands to be attained by this shifting of some part of the construction now done during booms into the subsequent depressions. Stabilizing construction and manufacture of industrial equipment is a necessary step toward stabilizing business in general.

(4) *The Long Range Planning of Public Works.* If private construction can be levelled out, public construction can also be levelled out. The proposal is to hold back government construction during business boom and let it out during business dullness. In the past, municipalities have followed such a plan more extensively than either State or Federal Governments, but there is no economic reason why the latter should not adopt the same course of action. Bowley has estimated that if England for ten years would set aside as reserves between 3 and 4 per cent of the ordinary appropriations for public works, the amount would be sufficient to relieve unemployment and stimulate new business

activity when private industry was in the depths of depression.¹⁷ Otto T. Mallery suggests that in the United States, where annual government outlays for building average about \$900,000,000, a reserve fund of one-third this amount should be set aside and assigned to the long range program.¹⁸

The same principles are also applicable to extensions of plant and additions to equipment by public utilities. The railroads are particularly heavy users of materials for construction and equipment, and a policy of levelling out railroad construction is of basic importance.

(5) *The Prevention and Relief of Unemployment.* Policies for the prevention of unemployment include all those general methods of credit, price, and business control which have previously been discussed. Whatever stabilizes business at large is a fundamental step toward the prevention of unemployment. However, since unemployment is a public burden and responsibility, it is particularly fitting that government policy should be specially aimed at control of employment. Hence, the long range planning of public works is of unusual importance in stabilizing employment. Further than this, the government can accumulate and distribute statistical data on production and trade, and on unemployment itself, which business men in turn can use in stabilizing their own enterprises. Thus the government can prevent and relieve unemployment by the long range planning of public works and by statistical information service to business.

The chief policy for the relief of unemployment is unemployment insurance. Trade unions have in the past followed out a version of this plan by building up funds for "out-of-work benefits." Coöperative reserve funds built up jointly by employers and employees offer a more comprehensive plan of unemployment insurance. Scattered individual experiments of this kind have been tried in the United States, and with a substantial degree of success, but in general such insurance has not been carried as far in the United States as in many European countries. It not only relieves the distress of labor, but aids in the recovery of business activity by putting labor in possession of purchasing power to be spent in consumers' markets. Moreover, by placing some of the burden and cost of unemployment on business men, they are confronted with a strong incentive to prevent unemployment from occurring in the first place.

Moreover, public offices of employment may be used to discover at what points an unsatisfied demand for labor exists, and at what points idleness of workers seeking jobs exists, so that the two may be brought together. Such bureaus would aid in transferring labor from one locality to another with the least possible loss from idleness.

¹⁷ A. L. Bowley, *Report of the Royal Commission on the Poor Laws and Relief of Distress*, 1909, Cd. 4499, p. 1195.

¹⁸ *The Long Range Planning of Public Works*, in *Business Cycles and Unemployment*, National Bureau of Economic Research, p. 234.

Summary.—The prevailing condition in business is not a static equilibrium or a perpetual prosperity, but a series of alternating ups and downs of prosperity and depression. In the past these have often been considered inevitable, but present analysis leads to the reasonable expectation that a substantial amount of control and stabilization can be attained. The main methods of control are preventive in character. They aim to prevent the downfall of profits and prosperity, and to keep the fluctuations of business within limits that are not excessive or wasteful.

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PART VI

INTERNATIONAL ECONOMIC RELATIONS

CHAPTER XXIX

THE BALANCE OF INTERNATIONAL PAYMENTS

The Nature of International Payments.—International trade and services create the necessity for international payments. Each nation owes certain sums abroad, and is owed certain sums from abroad. The central principle of foreign exchange is the settlement of the great bulk of these debts by a cancellation process, without the shipment of gold or silver. Only the net difference between a country's international debits and credits is met by shipment of the precious metals.

This cancellation process is complicated by the wide variety of national money units,—frances, marks, dollars, lire, pounds sterling, and many others. A French debtor must pay an American creditor in dollars, not in francs. An American debtor must pay an English creditor in pounds, not in dollars. Between all the nations, those who owe money must pay, not in their home money, but in the foreign money where payment is due. Hence the object of foreign exchange is the buying and selling of claims to foreign money. The credit process has as its aim the exchange of the money of the debtor countries for the money of the creditor countries.

The pre-war explanation of this process proceeded upon the assumption that the leading nations of the world use the gold standard. However much foreign moneys might differ in name or appearance, nevertheless they were alike in that the content of the money unit was gold, and that all currency in these leading countries was freely convertible into gold. But the World War resulted in widespread abandonment of this gold convertibility. The United States alone of the principal nations retained the unrestricted gold standard. Return to the gold basis of convertibility was a slow process for even the most favorably situated of the European belligerents. Hence the normal situation for the post-war period was in vital respects the opposite to what was normal in foreign exchange prior to 1914. The following discussion deals first with the nature of foreign exchange under normal conditions when the gold standard prevailed, and second, the modified nature of exchange under conditions when the gold standard was the exception.

Demand and Supply of Foreign Exchange.—The principal medium of payment between nations is the bill of exchange. Such other credit instruments as may be used are auxiliary to this chief medium. The bill of exchange may be defined as an order by one party on a second to pay either to a third party or to the first party himself. It is to be emphasized that the form of the bill of exchange is an *order* to pay, and not a promise to pay. The order to pay may develop into a promise to pay, if the party on whom it is drawn indicates his "acceptance" of the order. The acceptor promises to honor the order to pay. The draft is synonymous with the bill of exchange.

The demand and supply of foreign exchange is the demand and supply of these bills of exchange. They are the common credit instrument of international payments. In principle, foreign bills of exchange are identical with domestic bills, but owing to the different money systems involved in foreign payments, the foreign bills involve important problems which are distinct and separate.

The normal commerce and intercourse between nations constantly creates for each country a supply of bills of exchange and a demand for bills of exchange. Payments coming into a nation by bills of exchange give rise to supply; payments going out by bills of exchange give rise to demand. Since it is exports which require incoming payments, and imports which require outgoing payments, it follows that exports create the supply of bills of exchange and imports create the demand. Exports and imports are used in the broadest sense of the words, to include not only goods, but capital and services. Any form of international transaction which entitles a nation to receive payments is listed upon the export, or supply, side of its balance of international payments; anything which obligates a nation to make outgoing payments is listed upon the import, or demand, side of its balance. To use the terms of accountancy, a nation's credits abroad create its supply of exchange; and its debits abroad create its demand for exchange. The following two columns indicate these important classifications:

Determining Factors of Supply	Determining Factors of Demand
Include:	Include:
Export items, visible and invisible.	Import items, visible and invisible.
All credits of the nation.	All debits of the nation.
All incoming payments by bills of exchange.	All outgoing payments by bills of exchange.
All sales to foreigners.	All purchases from foreigners.

The Composition of the Balance Sheet of the United States.—The significance of the various factors in a balance of payments is brought out by considering actual estimates for the United States in typical years. The estimated balances of the United States for 1922 and 1923 are as follows:¹

¹ *Trade Information Bulletins 144 and 215*, United States Department of Commerce.

Export Items (credits)	(Millions of Dollars)	
	1922	1923
Visible items (goods)		
Exports of merchandise	\$3,867	\$4,208
Visible items (specie)		
Exports of silver	63	72
Exports of gold	37	29
Invisible items (capital)		
Interest and dividends received	476	567
American securities sold abroad	328	394
United States currency exported .....	...	50
Government receipts on account of debts of foreign nations	44	91
Invisible items (current)		
Use of our ships by foreigners	71	65
Services to foreign tourists	60	100
Total exports, visible and invisible	\$4,946	\$5,576
Import Items (debits)		
Visible items (goods)		
Imports of merchandise	\$3,113	\$3,819
Visible items (specie)		
Imports of silver	71	74
Imports of gold	275	323
Invisible items (capital)		
Interest and dividends paid out	125	150
American purchases of foreign securities	997	410
Invisible items (current)		
American use of foreign ships	64	73
Services to American tourists	360	500
Government payments	29	19
Immigrants' remittances, etc.	400	360
Total imports, visible and invisible	\$5,434	\$5,728
Comparisons		
Excess of total imports over exports	\$488	\$152
Excess of merchandise exports over merchandise imports	754	389
Excess of invisible imports over invisible exports	996	245
Excess of specie imports over specie exports ...	246	296
Invisible exports, per cent of merchandise ex- ports	25	30
Invisible imports, per cent of merchandise im- ports	63	40

The failure of total exports to balance exactly with total imports is due partly to the possibility of error in some of the estimates and partly to the fact that the unfunded balances of foreigners on the books of American bankers and merchants are not included. The total amount of this unfunded balance would be very difficult to ascertain, since it is scattered among the assets of many thousand business concerns and a great many banks. As foreign debtors liquidate these credit accounts, or substitute bonds for the short time obligations, their accounts listed as debits on the balance sheet of the United States would be cancelled. If these considerations are allowed for, the international payments of the country would almost always show an even balance.

Period (fiscal years)	Average Annual Excess of Merchandise Exports or Imports		Principal Invisible Items Off- setting Merchandise Balance
	Excess of Exports	Excess of Imports	
1789-1820		\$16,000,000	Profits on our merchant marine
1821-1837		11,000,000	Merchant marine and foreign in- vestments in U. S.
1838-1849	\$3,000,000		Interest payments on foreign in- debtedness
1850-1873		64,000,000	Heavy borrowing from Europe
1874-1895	113,000,000		Interest payments to Europe
1896-1914	487,000,000		Tourists' expenditures, immigrants' remittances
1915-1918	2,497,000,000		War loans to Europe
1919-1921	2,980,000,000		Foreign investments by United States, tourists' expenditures, im- migrants' remittances
1922-1924	691,000,000		Foreign investments by United States, tourists' expenditures, im- migrants' remittances

The international balance of payments is not composed alone of merchandise and specie, but of many important items of capital movements and services which are referred to as "invisible." Such factors as foreign investments, interest and dividend payments, immigrants' remittances, tourists' expenditures, freight charges for shipping, commissions and fees for insurance and banking, have come to be of such importance that they dominate the so-called "favorable" or "unfavorable" balance of trade. It is impossible to understand the movement of our foreign trade, our shift since the war from a great debtor to a great creditor nation, the possible development of foreign markets, the trend of exchange rates, the distribution of gold, or the trend of price levels, unless one realizes the significance of "invisible exchange."

Historical Significance of the Balance Sheet of the United States.—

The history of the balance of payments of the United States over more than a century shows that the invisible items have constantly been of importance; but that during the last two decades especially they have been of dominating importance. The summary on page 616 suggests the leading features of the balance of the United States over a period of years, and throws the present status of the creditor position of the nation into a clearer perspective. The particular invisible item singled out for mention in each period is only one of several which were constantly in operation, but it was the dominating one for each respective period.

Although the predominating influences have varied from period to period, nevertheless the invisible capital imports have had more influence than any other single factor in shaping the nature and amount of our trade balance. Down to 1874, with an exception for the brief period from 1838 to 1848, an unfavorable merchandise balance was offset by invisible exports in the form of earnings of the merchant marine and of foreign investments in the United States. The year 1874 marks the approximate turning point to a favorable merchandise balance. Since that date, merchandise exports have usually exceeded imports, and since 1893 not a single year has failed to show a favorable balance of merchandise. At first this favorable balance represented our effort to pay in goods the growing interest charges on foreign capital invested in earlier periods. There has been added to these annual interest payments, especially since the late nineties, the remittances of immigrants and the expenditures of tourists abroad. Up to the World War the United States ranked as a great debtor nation, and the heavy export of goods chiefly signified the effort of the nation to accumulate credits which would cancel invisible debits.

A second turning point, of even greater significance than 1874, occurred in the period of the World War. The traditional debtor nation became a leading creditor nation. The United States bought back the major part of the securities held by foreigners, advanced enormous war loans to Europe, and invested heavily during the post-war period in European securities. As a creditor nation, heavy net interest payments are annually due the United States. Such payments increase greatly our invisible exports. They swell the nation's credits. To offset them, the United States may accumulate debits by expanding its imports of merchandise and by expanding its invisible imports. The latter possibility is practically limited to the new investment annually by Americans in foreign stocks and bonds. The former possibility, expanding imports of merchandise, would require an unfavorable balance of trade.

The situation requires a more definite understanding of the term "favorable" as applied to the balance of trade. The word is one of the relics of mercantilism. The mercantilists taught that an excess of merchandise exports over imports is the only form of gain internationally, because this means an inflow of gold and a store of specie. This

obsolete fallacy has long since been denounced by economists, but it clings with wonderful tenacity to the public mind. The term "favorable balance" is still so widely used in business circles that there is no possibility of eliminating it from usage, but it must not be allowed to imply that there is any national disadvantage in receiving useful objects from abroad. There is nothing inherently favorable in any true sense of the word, in a so-called "favorable" excess of exports or inflow of specie. The real tests of what is favorable or unfavorable run much deeper than that. We shall use the terms "favorable" and "unfavorable," because they are in the business vocabulary. But we simply mean by them an excess of merchandise exports or imports, without any inference whatever that such an excess is for the good or harm of the nation.

The normal tendency for typical creditor countries, such, for example, as England or France, has been to maintain an excess of merchandise imports over exports. The capital-lending nations, in other words, tend to have a so-called unfavorable balance of merchandise trade. On the other hand, the normal tendency for typical debtor countries, such, for example, as India, Argentina, or Mexico, has been to maintain an excess of merchandise exports over imports. The capital borrowing nations, in other words, tend to have a so-called favorable balance of trade. The United States, before the World War, was a debtor nation, and it was natural that her exports of goods should exceed her imports. The United States, after the war, finds herself a leading creditor nation. The full force of her creditor position will not be felt unless and until interest payments on her foreign loans are actually being paid, but the tendency must inevitably be for the United States to develop a so-called unfavorable balance of trade in so far as interest payments are finally made to the country. There would be nothing injurious in developing an excess of imports over exports under such circumstances. It would be the normal and natural outcome of the country's creditor position.

In the course of industrial development, various countries tend to pass from one stage to another in their balance of trade. A young country borrows heavily from foreign sources as a means of getting a start in industrial technology. As its industrial development progresses, it becomes more and more capable of supplying its own capital from domestic savings, and it needs to borrow less and less new capital from abroad. It gradually meets not only interest charges on the old debt outstanding, but also certain sums on account of the reduction of the principal of the debt. Finally, it reaches the advanced stage of development where it begins itself to lend to countries that are still in a backward stage. One conspicuous turning point arrives in this evolution of stages when interest payments made by the borrowing country exceed new borrowing. As long as the nation's new borrowings exceed its interest obligations, the normal tendency is for its imports of goods to exceed its exports. But when the point is reached where interest on old debt exceeds new borrowing, the normal tendency is for its exports of goods to exceed its imports. The United States passed such a turning

point in the year 1874 approximately. The United Kingdom passed such a point in the year 1823 approximately. Argentina passed such a point in the year 1891 approximately. It has been generally true that the overturn in the balance of borrowings and interest payments is followed very shortly by a corresponding overturn in the balance of merchandise trade. The invisible balance of capital and interest movements appears to exert a dominating influence over the visible balance of merchandise movements.

Classes of Bills and Documents.—Bills of exchange may be broadly classified as commercial bills and bankers' bills. Commercial bills are those in which the maker or drawer, that is, the party who signs the order to pay, is a merchant. The party against whom such bills are drawn may be either the foreign buyer or his bank. Such bills are confined to shipments of merchandise. When the buyers and sellers are houses of established reputation, the merchandise need not be pledged as security. Such unsecured commercial bills are classified as "clean." More often, however, the merchandise must be definitely pledged as security, and such bills, accompanied by bill of lading, certificate of insurance, invoice, and other paper, are classified as "documentary." If marked "documents for payment," the buyer of the goods cannot get possession of them until he has actually paid the bill of exchange. If marked "documents for acceptance," as is usually the case, the buyer can get possession of the goods by writing his acceptance on the bill of exchange, thus promising to make payment at a later date. Short commercial bills are payable within thirty days, long bills usually within sixty or ninety days.

Bankers' bills are those drawn by a banker in one country on a banker in another country, the second bank usually being a correspondent of the first. The foreign bank, since it carries a balance previously deposited to the account of the first bank, is ordered to pay a sum of foreign money to a designated party. When immediate payments between countries are desired, a bank sends a cable transfer, ordering its correspondent abroad to pay out immediately a specified sum of money to a designated party. When a banker sells a sight, or demand, bill, the holder of the bill sends it by mail to his foreign creditor, who is entitled to payment immediately upon presentation to the named correspondent bank. The distance between New York and London means that the mail can carry these bills to their destination in about ten days. Such bills are practically bankers' checks. Time bills may be made to date from the day they are drawn, or from the day they are accepted. If payable within a month from time of acceptance, they are short bills; if payable within sixty or ninety days, or longer, after acceptance, they are long bills.

The differences in prices offered in the exchange market for the various grades of bills rest chiefly upon differences in credit risk and in length of time to maturity. Credit risk is mainly affected by the character of the merchants and by the soundness of the security behind

the bill. The time factor is important because bills are usually bought outright at a price which allows for whatever loss of interest the buyer will experience by having his money tied up in the bills. The shorter the term of the bill, the smaller the loss of interest due to delay, and the higher the price of the bill. The element of credit risk is felt chiefly with commercial bills. Where the merchants' names command international confidence, or where the merchandise under "documents for acceptance" is non-perishable, the risk is slight, and the prices of bills relatively high. The price of cable transfers is relatively high because payment is immediate and involves no loss of interest due to delay. Demand drafts are cheaper by an amount corresponding to about ten days' interest. Short and long drafts are cheaper by an amount corresponding to interest for thirty, sixty, or ninety days, as the case may be. *Credit risk and the time factor* are thus the main elements affecting relative prices of bills. *Bankers' demand drafts are usually the governing or basic rates of the market. Other rates are figured with reference to these fundamental rates.*

Methods of Financing Foreign Payments.—There are several methods of effecting the transfer of payments between countries. For purposes of convenience, we may classify them from the standpoint of whether the initiative in payment is taken by the exporter or by the importer. First, if the exporter takes the initiative, he may draw a bill of exchange on the foreign importer, and request his bank to collect through its foreign correspondent. The bank in this case acts only as a collecting agent, and the exporter does not receive payment until funds have been received from the debtor. By this method, the burden and risk of financing fall very heavily upon the individual exporter, and consequently the method is not held in wide favor. Second, the exporter may draw his draft on the importer, sell it to his bank, and let the bank collect through its foreign correspondent. The exporter has his cash immediately, but if the importer should fail to pay, the bank would come back to the exporter and hold him liable. The method is used, therefore, only when the importer's high reputation assures the exporter that there will be no failure to pay. Leading English merchants are of this type, and shipments to them are very widely financed in this way. The exporter may draw his draft on the importer, and secure cash on the draft at his bank up to 70 or 80 per cent of face value. The balance is secured at the maturity of the draft. This method is used when the security and soundness of the credit are not beyond question. Fourth, the exporter may extend open book credits to the buyer. This practice is not infrequent in shipments from the United States to Latin American countries. The weakness of the method is that it places too great a risk upon the exporter. Fifth, when foreign buyers are anxious to obtain goods, the exporter may require them to send cash with order.

There are other methods of financing trade, in which the initiative rests with the importer. First, the importer may supply the exporter with a commercial letter of credit. This letter, issued by the importer's

bank, authorizes the exporter to draw his draft on the bank itself or its foreign correspondent. The exporter can then get payment immediately by taking the letter of credit, together with his draft, to his local bank. If this bank forwards the draft to the bank which issued the letter of credit, and the latter bank writes "accepted" on the draft, it then becomes a bankers' acceptance, and is the direct obligation of the accepting bank. The credit risk is shifted from the shoulders of the exporter to the shoulders of the bankers. The importer benefits because he can usually obtain the goods promptly, but does not have to pay for them until the maturity of the draft. Because of *this effective substitution of bank credit for personal credit*, the commercial letter of credit is in wide use and is a most important feature of foreign financing. Second, an "authority to purchase" is the chief factor in financing American exports to the Far East. Outside this field its use is negligible. The importer in the Orient makes an arrangement with his local bank, whereby it instructs a bank in the United States to buy the exporter's draft. The bank in the United States notifies the exporter that it has been authorized to buy his draft. The draft is drawn on the importer, not on the bank. The exporter is safe in shipping the goods because he has an "advice of authority to draw" the draft, which assures him that an American bank will buy the draft when drawn. The draft is assured of a sale, and the exporter receives immediate payment. Such drafts are usually on time, sixty to one hundred and twenty days, and are payable in dollars. Third, the importer may buy a banker's draft, drawn by his own bank on a foreign correspondent, ordering the correspondent to pay the creditor in that country. The importer sends the draft to the exporter, who receives payment upon presentation at the bank. The draft commands the highest confidence, because it is a banker's order. The most frequent use of the banker's draft is to remit in purely financial transactions such as foreign loans or investments.

The Exchange Markets.—Before the World War, London was the leading exchange market of the world. A very large part of strictly non-British trade was financed by drafts payable in pounds sterling. There were other cities, such as Paris or Berlin, which financed trade engaged in by their respective countries, but neither Paris nor Berlin was of any importance as a financial center for non-French or non-German trade. The trade of the United States, instead of being financed by dollar drafts was usually financed by sterling drafts, and handled through London banks. The war effected some important changes in foreign exchange markets. It brought about a wide development of the New York market, and although it appears that London is still a leading market of the world for bills of exchange, nevertheless the New York market has been firmly established. New York banks are able to finance the larger part of the trade of the United States with other nations, and the resort to London banks is now a secondary method rather than primary. Exports from the United States to Latin America

and the Far East are almost entirely financed through the New York market.

The possible future rivalry for supremacy between New York and London is a debated question, and prophecy upon the question is not called for in this treatment of the subject. Instead of prophecy, we require a knowledge of some of the factors which give strength and development to an exchange market. We need an examination of forces which tend to expand the activities of a foreign banking center. First, bank organization for the specific purpose of foreign financing is necessary. English banks have covered the entire world with a vast network of branch banks and correspondent banks, and all important foreign banks have correspondent connections in England. The United States before the War was limited in its foreign correspondents, and had very few branch banks abroad. National banks were forbidden by law to establish foreign branches. The Federal Reserve Act legalized branches of national banks for foreign financing, authorized foreign branches of the Federal Reserve banks, and, with amendments, authorized the organization of banks for the exclusive purpose of foreign banking. Bankers have taken advantage of the opportunities created by the Federal Reserve provisions, and the branch organizations abroad have been greatly expanded. The branches radiating from New York are not, however, nearly so numerous or comprehensive as those radiating from London. In so far as bank organization gives strength to foreign financing, New York has made rapid progress and gives every evidence of continued growth and expansion.

Second, a discount market is essential. After the banks have accepted drafts drawn on them, the task remains to find an investor who wishes to advance the funds desired by the exporter. The acceptances must find buyers. London supremacy in foreign exchange has rested upon the tremendous power of English investors to buy the bills offered for discount in the market. The English banks have bought heavily on their own account, and have considered foreign bills as ideal liquid reserves. Private bill brokers and discount houses have developed highly efficient middleman machinery for distribution of bills to banks, corporations and private buyers. The Bank of England has rediscounted liberally foreign exchange paper. The United States has developed an open discount market of importance since 1914, although it is not yet equal in buying power to the London market. The Federal Reserve banks have bought foreign bills for their earning assets. The national banks have gone through an educational campaign encouraging the buying of bankers' acceptances, and the growth of bank purchases has been material. Brokers and discount houses have expanded their activities. There is now a true open market for foreign bills in the United States, and the possibility of larger importance for New York as an exchange market depends largely upon continued progress in this direction. Third, the maintenance of a free gold market, where the standard money can be bought and sold without restriction, is important in building up an

exchange market. Before the War, England enjoyed the reputation of being the world's leading free gold market. The interference with the gold standard during the war and the depreciation of English money by inflation of the currency, undermined this particular point of English prestige. New York acquired unquestioned supremacy in this respect, and enjoyed this distinct advantage in rivalry with London. With England's return to the gold standard in 1925, London will doubtless recover much of its prestige as a gold market.

Fourth, rates of discount must be low and stable. The English banks have been able to excel in quoting low discount rates and stable rates. This power is an index of the perfection of the discount market and of banking organization. Until New York banks are able to compete more effectively in these respects, they must be at a marked disadvantage in exchange dealings. Finally, the glorious tradition of world supremacy which attaches to the London market is a powerful factor. The New York market is a newcomer, an interloper in the field, and will require many years to establish the same traditions which London enjoys. Considering the several factors of rivalry, we may conclude that New York has made sound foundations for continued progress and growth, and whether or not she some day surpasses the London market, she at least gives every evidence of carrying a substantial part of the world's foreign financing and of playing a highly important rôle as a center of foreign banking.

Correspondent Banks and Foreign Deposits.—As a means of effecting the transfer of funds between countries, banks maintain deposit accounts with their correspondent banks abroad. For example, a New York bank makes and collects payments in England by tearing down and building up its deposits with its London correspondent. New York banks build up their London deposits by buying exporters' drafts drawn on foreigners. When the New York bank, having purchased drafts on English importers, forwards the drafts to its London correspondent for collection, the payments collected are deposited with the correspondent bank in England. This collection builds up London deposits. Conversely, when the New York bank, having sold drafts to American importers, orders its London correspondent to make payments to English sellers, the payments are made out of the deposits of the correspondent bank. This payment reduces by so much the London deposits. Consequently, the home bank's *purchases* of exchange from exporters *build up* its balance on deposit with its foreign correspondent; and the home bank's *sales* of exchange *tear down* that foreign balance. To maintain such foreign balances on deposit at a normal amount, it is only necessary to keep the bank's purchases and sales of exchange at a substantial equality from day to day. Sales offset purchases, and remittances to creditors offset collections from debtors. The process utilizes chiefly a bookkeeping transfer of credit accounts between banks and their foreign correspondents. Gold need not be shipped except on occasions when sales and purchases of exchange are unequal. Correspondent connections

make possible, also, many auxiliary banking services, such as the interchange of credit information, or the negotiation of acceptances. The network of correspondence connections is indispensable to effective foreign exchange banking.

The World Balance.—The balance of payments of the United States consists, not of accounts with any single foreign nation, but of the sum total of accounts with all foreign nations. Some nations will have a so-called "favorable" individual balance with the United States, others an "unfavorable" balance. But the foreign exchange market will be governed by the total balance of payments between the United States and the rest of the world.

Triangular exchange is a common method of clearing of accounts between more than two nations. In account with some nations, the United States has larger import than export items. As against this net debt due such nations, the United States has a net credit with certain other nations where her import items are smaller than the export. The first class of nations receive payment in the form of drafts drawn on the credits which the United States holds in the second class of nations. For example, it has been common for the import items of the United States to exceed the export with various South American countries. But at the same time, with various European countries the United States has an excess of export items. The European excess of export items in large measure cancels the South American excess of import items. Thus the net debt of the United States to a South American country does not require shipment of gold, but may be settled by a New York draft on surplus deposits with London correspondent banks. The excess of credit deposits at one point thereby serves to wipe out the excess of debts at another point. By such methods, although there is usually an excess of either export or import items as between the United States and any other nation taken singly, nevertheless after accounts are evened with all nations, the outflow and inflow of credit payments are nearly equalized.

It will be noticed, further, that the South American countries have a distinct need for the drafts on London credits. This need arises because in typical years, England exports more to South America than she imports from South America. The net account leaves South America in debt to London. The debt to London is offset by the South American credits in New York. In effect, we instruct Great Britain, which is our debtor and South America's creditor, that for the pound sterling which she owes us, she shall make payment of pound sterling to South America. *We cancel English debts to us, by having England pay our debts to South America.* England cancels her unfavorable balance with us by settling our unfavorable balance with South America. South America collects her favorable balance with the United States by cancelling her unfavorable balance with England. Thus, clearings of favorable and unfavorable balances, involving three or more countries, may take place through the exchange centers, with a minimum shipment of specie.

In addition to triangular exchange as an agency for regulating the world exchange market, arbitrage operations are important. Arbitrage has the effect of maintaining between the various nations at any one time an approximate uniformity of market rates of exchange. It prevents rates in one country from getting out of line with rates in other countries. It keeps the rates in different markets at the same time at a common level. Arbitrage is simultaneously buying exchange in countries where it is cheap and selling it in countries where it is dear. Under normal conditions, differences in prices of exchange between countries cannot persist long in the face of this constant readjustment of supply and demand to the price of exchange. Such operations depend upon the quick communication supplied by cable, telegraph, telephone and wireless. The arbitrage principle is applied also to levelling out differences in prices between countries of any articles for which there is an international market, such as stocks and bonds, gold, and certain commodities.

Par of Exchange Under the Gold Standard.—Between countries whose currencies are on the gold standard, the par of exchange is the mint par. The mint par between the United States and England is \$4.8665, since the pound sterling contains 4.8665 times as much gold as the American dollar. As quoted in the New York market, the mint par with any country is the value in dollars of the gold money unit of that country. *This value in dollars measures the ratio between the weights of pure gold in the coins of the two countries.* The mint pars between the United States and some of the leading countries are as follows:

Country	Monetary Unit	Mint Par in Dollars
Brazil	Milreis	\$0.5462 (paper par, .3244)
Canada	Dollar	1.0000
France	Franc	.1930
Germany	Mark	.2382 (pre-war gold mark or new reichsmark)
Great Britain	Pound Sterling	4.8665
Italy	Lira	.1930
Japan	Yen	.4985
Russia	Ruble	.5146 (pre-war gold ruble)
	Chervonetz	5.146 (post-war unit)

Actual exchange rates are above or below par a great deal of the time, and the fluctuations in normal times reflect the forces affecting the demand for and supply of bills of exchange. Heavy export items, visible or invisible, from the United States, by creating a large supply of bills of exchange, tend to depress the actual rate below par. Conversely, heavy import items, by creating a strong demand for bills of exchange, tend to raise the actual rate above par. Thus supply and demand of bills of exchange shape the rate in much the same way as

supply and demand shape the price of wheat or any tangible commodity in the market. The fluctuations in exchange rates take place within the limits known as the "gold points" or "specie points." These limits are set by the cost of shipping gold between countries. The cost is made up mainly of freight, insurance and interest items, and varies when any of these items vary. Prior to 1914, this cost was about two or two and one-half cents per sovereign for shipments between the United States and England, or about one-half of one per cent of the value of the gold. The cost has undergone fluctuations under the abnormal conditions since 1914, and has been at times more than five cents per sovereign. Under normal gold standard conditions, the price of sterling exchange would not fall much below \$4.84 because it would be cheaper to import gold to New York than to pay debts by the use of bills of exchange at so low a rate. Nor would sterling rise much above \$4.89 because it would be cheaper for New York to export gold than to pay debts abroad by the use of bills of exchange at so high a rate. The actual rates of exchange will not go above or below par by much more than these gold export and import points, unless there is some unusual restriction upon the free movement of gold between countries.

It is important to have clearly in mind the inverse relationship between export of gold and export of goods. Heavy exports of goods tend to cause imports of gold. Heavy imports of goods tend to cause exports of gold. Consequently, if a nation, such as the United States after the war, has an excess of gold, the only effective means to get rid of it is to increase visible and invisible items of imports and to restrict items of exports. A so-called "favorable" balance of payments induces gold imports; an "unfavorable" balance is necessary to induce gold exports.

Automatic Correctives of Wide International Differences.—When countries are on the unrestricted gold standard, a relationship of international equilibrium in exchange rates, interest rates, price levels, gold supply, and movements of merchandise, tends to be maintained. Wide divergencies from this equilibrium set in motion automatic correctives. These correctives are not to be viewed as quick and arbitrary remedies for each deviation from the normal, but as broad tendencies which work in the long run toward an approximate financial equilibrium. In any particular case, the actual effect of any one corrective influence depends upon the entire combination of other counter and parallel influences obtaining at the same time. Each new international situation must be analyzed with a view to discovering the unique and unprecedented proportion in which corrective and counter influences are then combined.

First, automatic correctives of *excessive rate fluctuations* are in operation. High exchange rates tend to set in motion influences which bring the rates down toward par. When rates reach the gold export point, the outflow of gold diminishes bank reserves and reduces the quantity of money and bank credit. According to the quantity theory, such a reduction in the quantity of money and credit will tend to reduce the

price level of the country. The lower price level means that goods are cheaper. Exports of goods will, therefore, be stimulated and imports depressed. Since it is exports which create supply of exchange, heavy exports throw a large supply of bills of exchange upon the market relative to demand, and depress the rate of exchange. The successive cause and effect steps are, therefore, *high rates, gold exports, lowered price level, cheaper goods, heavy merchandise exports, increased supply of bills of exchange, decreased rates of exchange*. A parallel process is going on at the same time. The high rates at the start are equivalent to a rise in the cost to Americans of foreign goods. Americans have to pay more for the foreign money wherewith to settle for their imports, and this amounts to the same thing as a rise in the price of imports. High costs decrease American imports. Since imports give rise to demand for bills of exchange, fewer imports mean less demand for exchange, and less demand tends to bring the rates of exchange down. The readjustment of all factors prevents rates from rising too high, and keeps them within close range of the mint par.

Second, automatic correctives of *abnormal excesses of exports or imports* are in operation. If a country's exports, visible and invisible, become seriously in excess of imports, certain influences are generated which check the maladjustment. The excess of export items will so increase the supply of exchange as to depress the rate below the gold import point. Gold imports will increase bank reserves and consequently bank credit, and the increased quantity of medium of exchange will tend to raise the price level. The high price level combined with the low rate of exchange will attract foreign goods and increase the country's imports. Goods will tend to flow where they are worth the most. The original maladjustment is corrected by the new tendency for imports to expand relative to exports.

Third, automatic correctives of *abnormal price levels* are in operation. If a country's price level becomes high relative to the level of other parts of the world, forces are initiated to bring it back to the approximate world level. High prices attract goods and so increase imports relative to exports. Heavy imports intensify the demand for bills of exchange, and when the rate reaches the gold export point, gold flows out of the country. This depletes bank reserves and contracts credit, and the reduction in the quantity of the medium of exchange tends to reduce the price level. The original high price level so affects the quantity of money as to work towards a lowering of the price level. By this means the purchasing power of an ounce of gold tends to be equalized among the nations. The freer the movements of gold and the freer the international market for goods, the more nearly will this equalizing result be attained. In actual fact, even under the gold standard, there are at times marked deviations from an exact international level, and the forces making for equilibrium often result in a very loose approximation to equilibrium. The corrective influences do not effect an immediate restoration of the price level, but over a period of time are strong forces

working toward that restoration. Such counter influences as are at work simultaneously, do not annul the existence and reality of the corrective influences, however much they may modify or restrain them.

Fourth, automatic correctives of *abnormal interest and discount rates* are in operation. If a country's interest and discount rates become relatively high, certain forces operate to bring them down. High interest rates attract loanable funds, whether in the form of bank credit or of gold. Gold seeks the investment market where it can earn the highest interest. Foreign bankers transfer deposits where bank credit will earn the most. The inflow of funds to the high interest country increases the supply of loanable funds relative to the demand, and thus tends to lower the interest rates and ease the money market. The original high interest rates set in motion a movement of loanable funds such as to bring the rates back into line with those of other countries.

It is possible for the Central Bank of a country to govern money movements by a deliberate manipulation of its discount rate. The Bank of England may arbitrarily raise its rate of discount as a means of preventing depletion of its reserves through gold exports. The inducement for export of gold from England disappears as soon as the home interest rate is as attractive as foreign interest rates. This regulation of discount rates by the central banking administration of a country has been chiefly applicable to England because London has held a position of central importance in the world exchange market. But it has also been applied by other countries, and the Federal Reserve system in the United States supplies a means for use of the method when conditions make it necessary. In this case the deliberate regulation of the rate supplements the automatic correctives, in the sense that equilibrium is established by the *arbitrary* raising of rates in the low interest country, instead of waiting for the *automatic* lowering of rates in the high interest country.

In the long run, movements of money rates affect not only the movements of money from country to country, but also the movements of merchandise. Prolonged discrepancies in interest rates bring fundamental changes in the international trade in goods. As the interest rates affect the distribution of money between nations, and as the quantity of money in each nation affects the price level, it follows that prices of merchandise will tend to rise where gold and funds accumulate. Where prices are high goods are worth the most, and imports to the high price country will result. But this merchandise movement sets in operation automatic correctives which tend to restore a normal balance between exports and imports. The high import, by creating demand of exchange, pushes the rates of exchange upward. High rates of exchange stimulate exports and check imports of goods. Hence interest rates exercise their corrective influences not only through money movements, but through merchandise movements as well.

Fifth, automatic correctives of *abnormal gold movements* are in operation. Gold flows where its value is greatest as well as where the

interest rate is highest. When it enters bank reserves, it increases the resources for credit expansion, eases the money market, and lowers the interest rate. When it seeks the country where its value is greatest in terms of purchasing power, it is seeking the country of low price level. As it increases the quantity of money in that country, it raises the price level. The gold exporting country tends as a result of its depletion of money to lower its price level and raise its interest rate. Thus the original inducement to the export of gold disappears as gold becomes worth more at home than abroad.

In the foregoing phenomena, the movements of gold, goods, and loanable funds are of primary importance. Each factor seeks the country where it is worth the most. But as its supply is added to the receiving country, that new supply tends to ease the market demand. *Price levels, exchange rates, interest rates, react to the flow of gold, goods and funds.* The interactions of these factors comprise the automatic correctives which tend to maintain the international equilibrium of trade and finance.

Qualifications of Exchange Theory.—The main lines of the theory of exchange are derived from the doctrines of Ricardo and of John Stuart Mill. They were worked out under simpler business conditions than obtain in the twentieth century. For example, the modern structure of bank deposits and credit was at the time largely undeveloped. Cash has been largely displaced by credit instruments as a medium of exchange. Hence gold supply affects prices only indirectly, after it first affects the volume of bank credit. Strict Ricardian theory suggests that the quantity of specie in a nation exercises a direct and certain effect upon prices and other factors in international trade. It thus rests upon a certain degree of over-simplification of the quantity theory of money and prices. A statistical comparison of prices and gold movements shows that at times when according to the strict theory of the case prices should have moved upward, they have often either remained stationary or actually declined.² Consequently, it is necessary to repeat the caution that not one force but many are in operation in international payments, and that each new situation is original and different from any other. The peculiar and unique combination of corrective influences prevailing in that particular situation is the important consideration. The strength of each corrective influence requires measurement and estimate in light of the distinct conditions then existing. When the corrective influences are understood in this manner, they are indispensable tools for analysis of exchange problems, and they avoid the pitfalls that would arise from treating them as fixed and independent forces.

Some writers have maintained that such qualifications leave the theory so indistinct as to be without practical value. Moreover, they have maintained that the notion of international equilibrium itself is a myth, since rates, prices, commerce, are always in movement and transition. These objections indicate that their authors expect too much of

² I. B. Cross, *Domestic and Foreign Exchange*, pp. 418-426.

the principles of exchange. These principles aid in analyzing complex and many-sided problems of exchange not by laying down hard and fast rules but by serving as guides to the chief factors and underlying conditions in such problems. The notion of equilibrium, moreover, does not imply a static and motionless condition in international trade and finance, but a normal about which rates, prices and trade fluctuate within limits.

Some Fundamental Considerations.—There have constantly appeared, in the discussion of international payments, two vitally important questions: first, what amount of gold should a country have; and second, what ratio is most favorable between a nation's total exports and imports.

In analyzing the first question, the Ricardian theory teaches that gold tends automatically to distribute itself among gold standard countries in such proportions as to equalize its purchasing power over commodities. Each nation therefore needs such a supply of gold as will tend to maintain its price level roughly on a parity with the price level of other nations. With this fact in mind, it is easy to recognize the fallacy of a popular notion that the more gold a nation acquires, the more wealthy and prosperous it becomes. Gold in excess of the amount necessary to maintain a price level in line with the level of other nations is a positive danger to a country, since it tends to upset normal price levels and disarrange normal buying and selling power in the markets of the world. The country needs such a gold supply as is necessary to avoid either inflation or deflation. The popular fallacy is a left-over from the doctrine of the seventeenth and eighteenth century mercantilists that the country which had the largest store of precious metals was the favored country, and although the doctrine is adequately exploded logically and technically, nevertheless it retains a powerful grip upon the imaginations of many business men, legislators, and popular leaders.

With regard to the second question: What is the best ratio between a nation's exports and imports?, mercantilist tradition likewise is widely found. People assume that the United States can be prosperous only by stimulating exports in every possible way and discouraging imports by tariffs and other devices. Exports are looked upon as a blessing; imports as a curse. This popular fallacy overlooks the elementary principle that every export must be paid for in some way, and that the only way is by an import of some sort. As Hartley Withers observes, "For everything that goes out something or other must come in, if the buying country is to pay for what it receives."³ The visible and invisible imports and exports represent an interchange of goods, services and capital. Net differences may be met by shipments of gold, but the smaller such shipments have to be the better. Gold shipments do the receiving country more harm than good after its specie supply is sufficient to maintain a normal price level. Consequently the conclusion is that the best ratio between exports and imports, both visible and in-

³ *Money Changing*, p. 176.

visible, is such an approach to equality between the two as will reduce the necessity for gold shipments to a minimum.

It is impossible to determine whether a balance of trade is favorable or unfavorable in the true meaning of the words, merely by ascertaining an excess of exports or imports of goods. It is necessary to take into account the balance of invisible payments. The combined balances of visible and invisible items will be such that total exports will approximately equal total imports. The shipments of gold will be very small in proportion to total payments, under the most favorable conditions. Further analysis is given to the factors determining national advantage in the chapters treating foreign trade and export of capital.

While the gold standard was maintained during the period before 1914, the mechanism of foreign exchange operated with a high degree of efficiency. The broad and fundamental movements of trade, of gold, and of price levels served as highly perfected safety valves in regulating international intercourse. It was a splendid illustration of the importance of money and money mechanism in regulating the whole broad field of economic life. People did not realize how important international finance had become until it was disorganized by the World War. When the old financial mechanism was destroyed, people discovered how dependent upon it they had been. But once it had been destroyed, the task of regaining it proved extremely difficult. The following chapter is devoted to the post-war problem of international finance, to the problem of reconstructing the money mechanism which alone is capable of restoring normal economic life to the nations of the world.

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CHAPTER XXX

MONEY AND FOREIGN EXCHANGE SINCE 1914

Except for the United States, the principal commercial countries were unable to maintain convertibility of their currency into gold under the stress and strain of the World War. Some countries were able to resume the gold standard in the post-war decade, at the pre-war parity of value. Other countries may be able to resume gold convertibility at a new and lower parity. Still others may be unable to resume under any conditions for a long time. And, finally, some may decide not to resume at all, but to use a regulated paper standard. Even if the post-war confusion in world finance and exchange should prove temporary, nevertheless the period would remain a classic example of financial chaos and trouble, and would demand careful examination and study. The period would offer an excellent opportunity to trace the laws of finance, and to observe the harmful results of failure to understand such laws. But there is every evidence that the effects of this period must be much more than temporary. This being the case, it is necessary to carry the principles of exchange over into the great contemporary problem of world finance, and to make use of those principles in the endeavor to understand the new issues involved in the present situation.

The new difficulties facing the world are not so much the outcome of new forces of finance, as they are the outcome of old forces working out in new ways. Normal principles of international finance do not need to be displaced by new principles. On the contrary they need to be adapted to the new conditions, and applied to the abnormal problems. Consequently, the principles outlined in the previous chapter will be drawn upon in the analysis of conditions since 1914.

The Par of Exchange Under Irredeemable Paper.—When gold convertibility is abandoned, the normal mint par of exchange between countries is also abandoned. Since the mint par is the ratio between the weights of gold in two money units, and since irredeemable paper units have no value according to weight, it simply becomes meaningless to speak of a ratio between paper money weights. Under this condition, some authorities maintain that there are no parities at all. This rejection of the idea of parities under abnormal exchange would seem, however, to be an extreme interpretation. Pars of exchange do exist, although their nature is somewhat different, and methods of measuring them require modification. For purposes of clearness, we may examine these new parities by taking two broad types of exchange under irredeemable paper. First, we may take exchange between two countries, one of

which is still using gold money and the other of which is using irredeemable paper. The best illustration is the relation of the United States, still using redeemable currency, with various European countries using paper currency. Second, we may take exchange between two countries, both of which are using irredeemable paper. The best illustrations are the relations between various European countries.

(1) The par of exchange between the United States and a country using irredeemable paper may be measured by two different methods. One method gives what may be called the *gold price par*; the other, what may be called the *purchasing power par*.

The gold price par of exchange is the ratio between the prices offered for gold in the gold markets of two countries. In the United States, the price of gold is fixed by law at one dollar for 23.22 grains of fine gold. In England, the gold pound sterling contains 4.8665 times this amount of fine gold, or 113.0016 grains. But while England was off the full gold standard, paper pounds sterling were not convertible into gold sterling at face value. If an English banker wanted to buy gold sterling, he had to go into the gold market, and buy it with paper currency, just as he might attempt to buy in merchandise markets any other form of commodity. *The paper price of sterling was simply the paper price of 113.0016 grains of fine gold.* The difference between the paper price of gold and the face value of the gold unit, is known as *the gold premium*. Hence, the gold premium is the basis for computing the par of exchange.

If the gold premium in England was 25 per cent, the paper price of gold sterling was simply 25 per cent above the face or mint value of the gold coin. To state the same fact the other way around, the face value of the gold coin would be four-fifths, or 80 per cent of the paper price of gold. In that case, the par of exchange is simply 20 per cent below the old mint par of exchange, or 20 per cent of 4.8665. Sterling exchange is then said to be at a discount. Consequently, the discount on sterling exchange varies with each change in the premium on gold coin. As the gold premium rises, the discount of exchange falls.

If a New York banker desired to secure a thousand gold pounds sterling in London, his problem was to find how many paper pounds were necessary to purchase a thousand gold pounds. If the premium on gold is 25 per cent, the banker will need to secure 1,250 paper pounds wherewith to obtain 1,000 gold pounds. But from his knowledge of the old mint par, he knows that 1,000 gold pounds is the same in weight as 4866.5 gold dollars. He can afford, therefore, to give 4866.5 gold dollars to secure 1,250 paper pounds, and these paper pounds, in turn, will secure 1,000 gold pounds in London. If, then, the New York banker buys paper pounds at the rate of 3.8932 dollars each, it will cost him 4866.5 dollars to secure the 1,250 paper pounds wherewith to buy the 1,000 pounds of gold in London. The rate of \$3.8932 will, therefore, be the gold price par of exchange. *It is the ratio which equalizes the prices of gold in the two countries.*

Several problems arise in the use of this new par of exchange. First, the freedom to buy and sell gold in international markets is important. Under war and post-war conditions, the United States was practically the only free gold market. Most other nations surrounded the movement of gold with embargoes or other import and export restrictions. Even London, which before the War was the leading gold market of the world, did not reopen the gold market until 1919, and then it was only a partial reopening. Complete reopening did not come until 1925. New York became the leading gold market. In this situation, the premium on gold in a foreign country referred fundamentally to the price of gold dollars in terms of foreign paper. From the point of view of the United States, the foreign paper price of gold is as a matter of fact stated as the gold dollar price of foreign paper. Thus, New York exchange rates on France are the gold dollar prices of depreciated francs. When the United States buys foreign exchange, what it really seeks to buy is foreign paper by offering domestic gold. When the United States sells foreign exchange, what it really seeks to sell is domestic gold in return for foreign paper. The end sought is to exchange home money for an equal value of foreign money. The par of exchange is the rate at which such an equal transfer from United States gold to foreign paper may take place. The dollar came to hold this international prestige because the United States maintained gold convertibility and became the leading free gold market of the world.

A second problem arises from the fact that the gold price par is a fluctuating par of exchange. The old mint par was fixed because it was a ratio between fixed gold weights of money units. But the new par is a ratio between changing prices of gold, and with every change in the premium on gold, the par itself changes. In using the gold price par, it is necessary to bear in mind that it is only the par which holds true at a given point of time. For this reason, it does not indicate what the fundamental trend of exchange movements may be. To discover this fundamental trend, it is necessary to ascertain what the fundamental trend of price levels and gold prices in different countries is likely to be. This limitation does not, however, mean that the dealer in foreign exchange cannot use the new par in carrying on his calculations of present transactions in exchange. For that purpose, the gold price par is indispensable.

Third, the problem of the gold export and import points is important. Of course, if a country forbids shipments of gold, the specie points cease to have any usefulness. But in so far as gold shipments are permitted, the specie points apply under the new par of exchange just as truly as they did under the old mint par. *While England was using a paper standard, actual rates on sterling exchange moved above or below the gold price par by only two to four cents per pound sterling, depending upon the cost of shipping gold at the time.* The specie points set the limits to deviation of rates from the new par to the extent that gold is allowed to move between countries.

Fourth, the problem of the relation of the new par of exchange to the general price level, and to the purchasing power of depreciated paper over commodities requires analysis. *The paper price of goods and the paper price of gold tend toward a uniform level.* Although subject to rather wide temporary divergences, the two prices tend to come together. Moreover, *the premium on gold tends to correspond with the variations in the price level for commodities in general.* Temporary discrepancies exist, but the fundamental trend is for the two to come together. Broadly considered, therefore, a fundamental correspondence exists between exchange rates, the gold premium or the paper price of gold, and the general price level.¹

The second method of calculating a par of exchange is the purchasing power par method. *The purchasing power par is the ratio between the internal purchasing powers of two currencies.* Internal purchasing power is measured by the index of the general price level. Every change in price levels brings a corresponding change in the purchasing power of money. These changes have affected the different countries since 1914 in widely different degrees. If 1913 be taken as a base year with a price index of 100, the price index as calculated by the Federal Reserve Board for 1923 is found to be as follows for various countries:

United States	164
England	170
France	394
Canada	150
Japan	198

Each change in price levels means a change in relative money values. At any given time, the normal or par is the rate which shows how much of the money of one country is needed in order to have the same purchasing power over goods as the money unit of another country. The United States needs to know how many dollars are equivalent in purchasing power to a given amount of French or Austrian or Italian depreciated paper money. As compared with France, for instance, it is necessary to know how many dollars will buy the same amount of goods in the United States as one paper franc will buy in France. This ratio between the dollar and the franc gives the purchasing power par between the two countries.

As a mathematical calculation, this par may be computed for all practical purposes by multiplying the pre-war mint par by the price index of the United States at a given date, and dividing this product by the price index of France at the same date. The same formula of calculation applies to the currency of any other nation. *The par so calculated is the rate of exchange at which the dollar would possess an equal purchasing power whether spent at home or converted into a for-*

¹ See Wesley C. Mitchell, *History of the Greenbacks*; Joseph F. Johnson, *Money and Currency*; John H. Williams, *Argentine International Trade under Inconvertible Paper*.

eign money. This par meets the fundamental objective of an exchange rate, which is to enable a merchant to determine how to measure the purchasing power of his money over goods and services abroad. It enables the American dealer to swap the purchasing power of his own money for an equal purchasing power of foreign money. It shows him the rate at which either currency would possess the same buying power over goods in both countries.²

Certain problems arise in the use of the purchasing power par. First, it is difficult to obtain a perfect statistical method of calculation. Lack of uniformity in methods of computing price levels is an obstacle to statistical accuracy. This obstacle is overcome, for practical purposes, by the Federal Reserve Board, which compiles price indexes for leading countries based as nearly as possible upon uniform selection of commodities and uniform statistical method. Another statistical difficulty is the assumption that 1913 is a normal year to use as a base for later indexes. The purchasing power of money in the different countries was not absolutely equalized under the pre-war mint par of exchange. However, the discrepancies which existed between countries in 1913 were normal discrepancies, due to such factors as costs of transportation of goods or differences in tariffs on imports or exports. Assuming such discrepancies normal, and existing in much the same degree now as then, the use of the year 1913 as a base of 100 does not harm the accuracy of calculation of the purchasing power par enough to weaken its usefulness for ordinary practical purposes. Certain statistical studies by the United States Tariff Commission seem to bear out the soundness of these assumptions and the method based upon them.³

Second, although the purchasing power par is computed from indexes of the general price level, nevertheless there are frequent differences between prices of export goods and prices of goods used at home. Export prices may be above or below the general price level. However, there is a firm long run tendency for the two prices to come together.⁴ The essence of the purchasing power par theory is its emphasis upon general purchasing power as being in the long run the more fundamental determinant of international exchange.

Third, the fact that exchange rates may move in advance of domestic prices has led some authorities to declare that the latter cannot be the cause of the former. Such authorities assume that whichever factor moves first must be the cause of what comes after. However, the real meaning of this sequence of events is that exchange rates anticipate probable price movements. Exchange rates are extremely sensitive to all market factors, and respond very quickly to prospects, hopes and fears as well as to realities. In anticipation of further inflation or

² See the *Federal Reserve Bulletin*, September, 1923, pp. 1004-1006; *United States Tariff Commission Report*, 1922, on "Depreciated Exchange and International Trade"; Gustav Cassel, *Money and Foreign Exchange After 1914*, pp. 183-187.

³ *Ibid.*, 1922, pp. 11-13.

⁴ For statistical verification, see Wesley C. Mitchell, *Bulletin 284*, United States Bureau of Labor Statistics, pp. 30-31.

deflation of prices, exchange rates discount them before they actually take place.

Fourth, the purchasing power par, like the gold price par, is a fluctuating figure. As long as price levels remain fixed, the par may remain fixed. But as soon as the price levels change, the par changes. Hence, *to forecast the movements of par, it is necessary to estimate the probable degrees of inflation or deflation.* This limitation upon the purchasing power par theory, like the others just mentioned, does not undermine the validity of the theory nor destroy its usefulness in understanding international exchange. The theory has fundamental uses within the limits set.

Having stated the two parity theories, we may make certain comparisons of their significance. They are not contradictory theories, but supplementary. Both theories rest upon the principle that the fundamental determinant of the normal rate of exchange is the tendency for the value of money in different countries to come to corresponding levels. *One par measures primarily the purchasing power of depreciated paper over gold. The other measures primarily the purchasing power of depreciated paper over goods.* The former, or gold price par, is chiefly useful to bankers and dealers in foreign exchange in calculating actual transfers of money between countries. The latter, or purchasing power par, is chiefly useful in determining fundamental movements of exchange rates and of the balances of trade.

Although economic literature has been specially devoted to these theories of foreign exchange since 1914, nevertheless the theories are not essentially new. Ricardo, Mill, and Goschen, for instance, gave brief attention to the problem of finding a normal rate of parity under irredeemable paper. As early as 1810, the famous English Bullion Report accounted for British experience with depreciated paper and fluctuating exchange, by a general formulation of the purchasing power par principle. The general idea of parity under depreciated paper is not novel or original at the present moment. However, the earlier economists traced the idea only as an incidental side issue, and naturally so, since their main interest was centered on a study of exchange between countries using convertible paper currency. But after the World War, depreciated paper currency became the main problem of foreign exchange, since nearly the whole world was using some form of currency other than convertible gold. Since the war, Gustav Cassel and other economists have built upon the previous studies of the subject and undertaken intensive investigation of the matter. Consequently, the theories of parity have come to form an indispensable tool in understanding exchange movements and international finance.

(2) Although the above analysis of parity is directed toward the exchange relation between a gold money country, such as the United States, and a paper money country; nevertheless the same analysis, with slight adaptation, applies to *the exchange relation between two countries, both of which are using irredeemable paper.* The gold price par between

two depreciated paper countries is the ratio between the prices offered for gold in the two countries. The par between France and Italy, for instance, would be the ratio between the French and Italian prices of gold. The prices of gold, in turn, are determined by the discount of exchange between France and the United States or Italy and the United States. The French price of gold is represented by the exchange rate at which paper francs will buy gold dollars. The Italian price of gold is represented by the exchange rate at which paper lire will buy gold dollars. The ratio at which the two depreciated paper units will exchange for an equivalent amount of gold dollars is the gold price par between France and Italy.

Where gold exports or imports are prohibited, as they are in many depreciated paper countries, the practical application of the gold price par is greatly impeded. Under that condition, the most useful comparisons have to be made by the purchasing power par principle. *The rate which equalizes the purchasing power of francs and lire over goods in their respective countries is the normal par of exchange between France and Italy.* Actual rates tend to converge around this rate of parity. The purchasing power par is the most reliable method of calculating parities between depreciated paper countries.

Gold Prices of Commodities.—The two theories combine to give comparisons, not merely of paper prices of gold or paper prices of goods, *but gold prices of goods in various countries.* For instance, to reduce commodity prices in France to a gold basis, it is necessary to multiply the French price index at a given time by the actual rate of exchange, and to divide this product by the mint par of francs. The result gives the price of goods in France expressed in gold dollars instead of in paper francs. The gold price of goods in each country gives an especially valuable basis for price comparisons in the commodity markets. The following table compares paper prices with gold prices in certain years:

FEDERAL RESERVE BOARD WHOLESALE PRICE INDEXES FOR ALL COMMODITIES

Year	On Paper Currency Basis			Converted to Gold Basis		
	United States	England	France	United States	England	France
1913	100	100	100	100	100	100
1919	211	241	...	211	219	...
1920	239	310	512	239	233	187
1921	149	198	344	149	156	133
1922	158	165	319	158	150	136
1923	164	170	394	164	159	124

When the gold price index is lower in France than in the United States, it means that goods are cheaper in France. Since merchants

seek to buy goods where they can get them the cheapest, they would tend in this case to buy from France.

Gold Shipments and Automatic Correctives.—Gold shipments may still occur with a paper standard country, unless forbidden by embargo, but they no longer effect a normal international distribution of gold supply, as was the case under pre-war conditions. The loss of gold by a depreciated paper country lessens confidence in ultimate redemption of the paper, and so lessens the value of the paper. This lessened value of the paper is directly reflected in the rise of the price level index. Then, in order to sustain business at the higher price level, more paper money is demanded. That is, more inflation is demanded. *Thus, the loss of gold under depreciated paper, instead of acting as a corrective of price levels, dislocates them still further by stimulating fresh inflation.* Depreciated paper countries since 1914 have shipped vast amounts of gold to the United States to pay their adverse trade balances. They thereby have depleted their already weakened reserves, and at the same time have added excess sums of gold to the already surplus stocks of the United States. *Under depreciated paper, therefore, the movements of gold, far from acting as an automatic corrective of disturbances, have acted as an automatic mis-corrective.* Only a deliberate policy of international coöperation can be expected to bring about a constructive control of these movements, and a redistribution of gold supply in proportion to national needs.

Tables of Exchange Rates and Prices.—With the principles stated, it will be useful to view some of the actual facts of exchange and price movements. The following table records statistical comparisons between the United States and some leading countries:

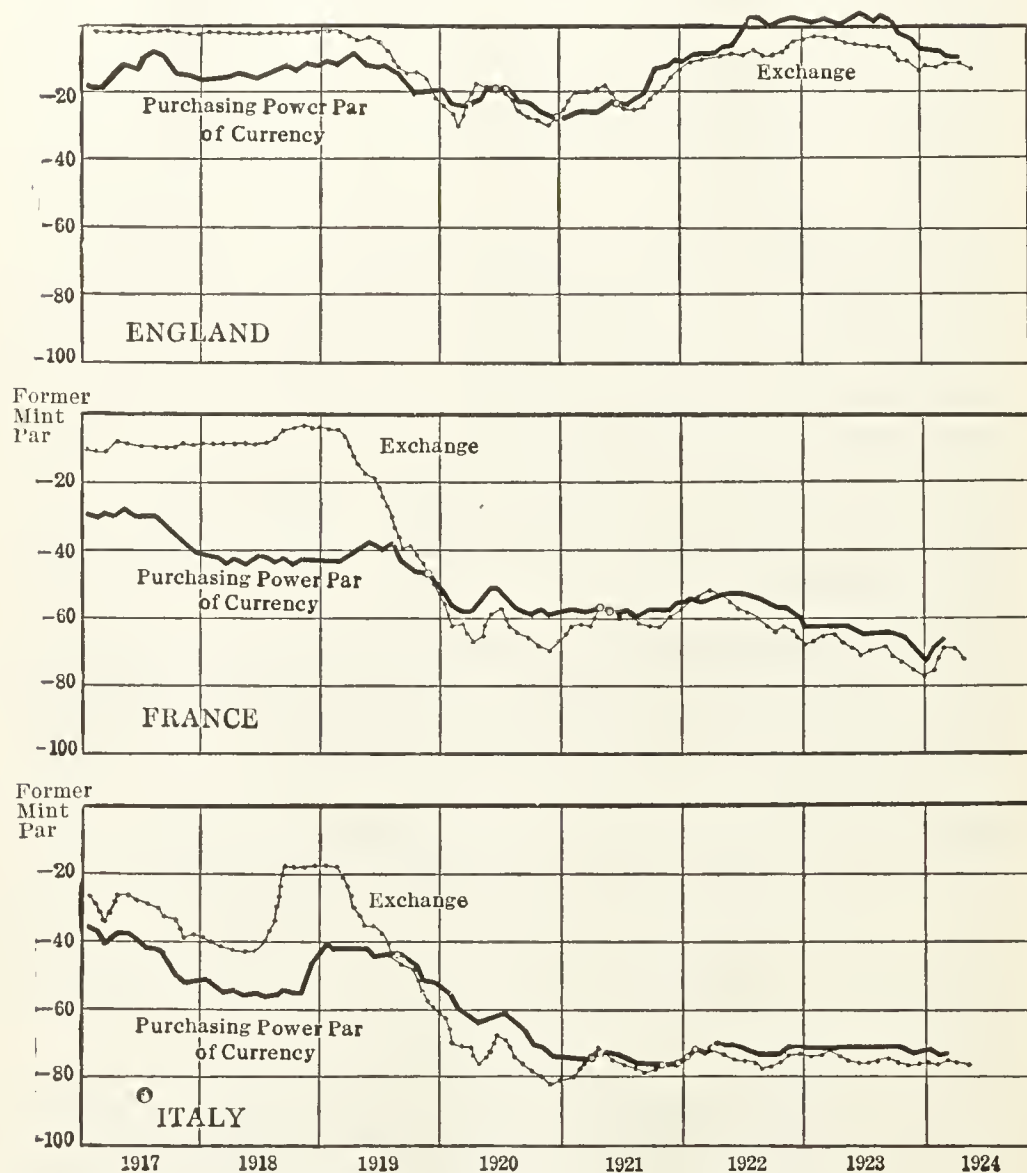
COMPARISONS OF PRICES AND EXCHANGE RATES BETWEEN THE UNITED STATES AND CERTAIN OTHER COUNTRIES (1919-1922) *

	U. S. price index, 1913 = 100	Great Britain Mint Par \$4.8665			France Mint Par 19.3 Cents			Italy Mint Par 19.3 Cents		
		Purchasing Power Par	Actual Rate of Exchange	Price Index, Gold Basis, 1913 = 100	Purchasing Power Par	Actual Rate of Exchange	Price Index, Gold Basis	Purchasing Power Par	Actual Rate of Exchange	Price Index, Gold Basis
December, 1919	233	3.9523	3.8123	225		.0924	172	.0988	.0766	181
1920	179	3.3473	3.4924	187	.0822	.0592	129	.0527	.0349	118
1921	142	4.0238	4.1561	147	.0957	.0784	117	.0461	.0444	137
1922	164	4.8019	4.6098	157	.1004	.0723	118	.0546	.0503	151

* Data from *Depreciated Exchange and International Trade*, U. S. Tariff Commission, 1922. For monthly data, 1913 to 1924, see *European Currency and Finance*, Commission of Gold and Silver Inquiry, United States Senate, 1925.

The accompanying chart shows graphically the tendency of actual market rates to fluctuate around the purchasing power parity.

COMPARISON OF ACTUAL EXCHANGE RATES WITH FORMER MINT PAR AND WITH PURCHASING POWER PAR *



* Data by courtesy of Federal Reserve Bank of New York.

Fluctuations of Exchange Rates.—Both the range and the rapidity of fluctuation of exchange rates are greater under inconvertible paper than under the free gold standard. While the gold standard operates, the par of exchange itself is fixed; and the gold export and import points are only two to three cents above and below the mint par of the pound sterling. The outside limits of fluctuation then are only about 1 per cent

above or below \$4.8665. Gold shipments and the mint par provide an automatic check upon excessive fluctuations. When inconvertible paper prevails, this automatic check disappears. Not only may the par itself fluctuate but with gold shipments restricted, the actual rates fluctuate widely above and below the purchasing power par. There are then no fixed limits to exchange fluctuations. The depreciated pound sterling has been quoted at less than two-thirds of its former mint par, and both the franc and the lira at less than one-fifth of their mint par, and both have deviated widely at times from their new purchasing power par.

It is not the fluctuations from mint par, but from purchasing power par which are of primary significance. As Cassel explains, "In reality, the terms 'high' or 'low' exchange rates have no significance in themselves; if they are to be used at all they must clearly refer to the truly normal rates—i.e., to the purchasing power parities."⁵ When current exchange rates coincide with the purchasing power par, there is no effect upon normal trade one way or the other. The fact that the purchasing power par itself is above or below the old mint par gives neither advantage nor disadvantage to exporters or importers. The new normal point of exchange is the standard by which to measure deviations in exchange movements.

Two types of fluctuations occur, the day-to-day movements and the long-time trends. From one day to the next there occur abrupt and extreme rate changes. The pound sterling has been known to fall within the space of three days by as much as 27 cents, or a decline sufficient to cause a loss of nearly \$1,000 on a draft for £10,000. The franc rose from 3.44 on March 8, 1924, to 5.63 on March 24, 1924, a jump of 63 per cent within a period of sixteen days. Under such violent rate movements, dealing in exchange becomes for all practical purposes mere gambling. Exporters and importers labor under a severe handicap when they must bear the burden of such extreme speculative risks. These short and extreme fluctuations take place in response to highly unsettled internal conditions in the various countries. Every new rumor of further inflation, every political move which endangers the peace of the world, every restriction on trade, causes the sensitive exchange rates to swing up or down.

In addition to the daily rate movements, there are average up and down trends for longer periods. Two broad types of movements have to be accounted for: first, the fluctuations of the par of exchange itself; second, the fluctuations of actual rates of exchange above and below par. For purposes of convenience, the following analysis deals chiefly with the purchasing power par, although the considerations presented would apply equally to the gold price par.

First, in explanation of the fluctuations of the new par of exchange itself, we have to search for the causes almost entirely in currency conditions. *The central causes are found in the inequalities of inflation in different countries.* The expansion and contraction of irredeemable

⁵ *Money and Foreign Exchange After 1914*, p. 157.

paper in European countries has governed the deviations of purchasing power par. Even if other conditions were restored to normal, the purchasing power par would remain a fluctuating par and would not correspond at all with the old mint par. Currency conditions drove the purchasing power par below former mint par, and currency conditions keep it there. The only force that could possibly restore the purchasing power par to a level with the former mint par would be to restore price levels and money values to their former normal relationship. The only force that could possibly stabilize the purchasing power par itself would be to stabilize currency values and price levels. Consequently, to understand the movements of the par of exchange under depreciated paper, we must look to currency conditions and *internal* money policies.

Second, in explanation of the deviations of the actual rates from par of exchange, we have to search for the causes in commercial and political conditions. Owing to war and post-war conditions, Europe bought enormous quantities of goods from the United States, but sold relatively few goods in return. Europe paid for this huge inflow of goods by borrowing from the United States. This condition had the effect of creating for Europe an enormous adverse trade balance and a cumulative piling up of debts. These factors forced the actual rates of exchange below the purchasing power par. Abnormal trade balances mean abnormal declines of exchange rates. *But even if trade balances were restored to normal, the result would not be to raise rates to the old mint par. The result would simply be to raise rates to the new purchasing power par.* The normal trade balance would have the effect of bringing rates to their normal level, which is the purchasing power par of exchange.

A variety of forces are closely associated with the balances of trade, and exert similar influences over the exchange rates. The mere anticipation of further inflation will cause rates to fall below par before the inflation actually takes place. Furthermore, whatever factors may tend to increase abnormally an outflow of remittances from a country will depress exchange rates. Thus, the reparations due from Germany tend to depress the mark far more than would otherwise be the case. Likewise, the payments due the United States on account of the Allied debts tend to depress the pound, the franc, and other currencies. Moreover, the unsettled political foundations of European life since the war have severely weakened the confidence of other nations in Europe's future stability and have therefore greatly weakened the external values of European currencies. Broadly speaking, all abnormal and unstable economic and political conditions drive rates of exchange below their purchasing power par and hold them there.

The distinction between movements of par and deviations from par should be kept clear. *The fluctuations of purchasing power par itself are due to currency conditions; the deviations of actual rates from par are due to commercial and political conditions.* Much confusion appears

in public discussion of international finance and exchange because of the failure to bear this fundamental distinction in mind.

In making this distinction, we are not ignoring the fact that currency conditions and commercial relations are closely inter-related. There are two possible extreme interpretations of this relationship. One interpretation is that currency conditions govern the commercial balance of trade and the political situation. The other interpretation is that commercial and political conditions govern the currency situation. There are authorities of repute who defend each of these extreme interpretations. However, each version suffers from the fact that it is an extreme, and that it claims an altogether too exclusive influence for a single factor. We come much closer to the facts of the situation if we recognize that currency and commercial conditions mutually interact, and profoundly influence each other. Inflated currencies and abnormal trade balances are inter-dependent economic forces. Constructive control of world finance must, therefore, rest upon a distinction between the effect of currency conditions upon the par of exchange and the effect of commercial conditions upon deviations from par, but it must with equal emphasis recognize the deep mutual bonds of cause and effect between currency policies and commercial policies in the various nations.

During the greater part of the war, exchange on leading European countries was quoted above the purchasing power par. This was due to the artificial process of "pegging exchange." For instance, from October, 1915, to March, 1919, England pegged the pound sterling at \$4.76. By private and government borrowing, England provided credits in the United States wherewith to buy whatever amount of exchange might be necessary to maintain that rate. France similarly pegged the franc at 18.3 cents. If the Allied governments had not in this manner created an artificial demand for exchange, the rates on those countries would have fallen greatly. Soon after the pegging was removed in 1919, this belated fall in exchange did take place. Subsequent rates have been below purchasing power par, with a tendency evident in most countries to return gradually to that point of parity.

Automatic Correctives of Fluctuations.—The corrective influence of gold shipments when countries maintain gold redemption has already been noted, and the absence of this normal corrective influence when countries maintain a paper standard has been explained. It is important to note, however, that foreign exchange even under depreciated paper is not without certain kinds of corrective influences. These center chiefly in the effects of the balance of trade upon rates of exchange and upon costs of commodities. The balance of trade sets in motion forces which tend to check excessive deviations from an international equilibrium.

When a foreign country has an excessively adverse balance of trade, the United States rate of exchange on that country tends to move below par. The low exchange rate means that the United States can buy foreign money at a bargain. It means, for instance, that New York can

buy francs which have a purchasing power of a dollar by paying less than a dollar for them. That is, New York can buy francs cheaply. The francs will buy more goods in France than the dollars would have bought in the United States. Thus, the low exchange rate is equivalent to a lowered cost of French commodities in her export market. The rate on francs below par cheapens the cost of French goods to American buyers. The result is a stimulus to French exports. For the converse reason imports into France are restricted. By this process the excessive adverse balance of trade tends to right itself. The very fact that the heavy adverse balance of trade depresses exchange below purchasing power par makes the paper money country a cheap place in which to buy goods and a dear place in which to sell. Hence exports from the paper money country are stimulated and imports discouraged. Under this tendency, the balance of trade becomes less and less unfavorable, and approaches the point where it would actually become favorable. Thereby the adverse balance tends to wipe itself out. With the approach to a normal balance, the fluctuation of exchange below par tends to disappear. *Normal trade tends to bring normal exchange, i.e., the purchasing power par.*

This corrective tendency does not take effect without encountering certain obstacles. It is not uncommon for a government to become alarmed at the stimulus to exports from its ports, with the fear that goods needed at home may be shipped abroad and the country exhausted of supplies. Governments often artificially restrict exports at such a stage, either by imposing a tariff on exports, or by restricting the quantity of export sales, or by fixing export prices at an arbitrary high point. This artificial interference with the corrective tendencies of trade and exchange rates usually has the effect of depreciating the exchange of the country more than ever. It is therefore a short-sighted policy, and as long as it endures, prevents the return of exchange to a normal and stable level.

Moreover, no matter how much low exchange rates may stimulate exports from a paper money country, nevertheless exports cannot actually increase in volume unless the country has first been able to produce goods ready for export. European countries following the war suffered from low productivity, and obviously what was not produced could not be exported. This was true, regardless of where exchange rates might stand. The case of Germany is especially to the point, for although low exchange for paper marks made German goods very cheap for outside buyers, yet Germany did not dump huge quantities of cheap goods into the United States for the reason that she lacked the capacity to produce such a flood of goods in the first place. From these considerations, it follows that the corrective influences of trade balances and exchange rates can work themselves out only in so far as normal productive capacity is restored to the nations involved.

Divergence of Export Prices from Domestic.—Prices of goods entering international trade may diverge considerably from prices of goods

entering only domestic trade. Assume that in country B the price of copper, an export commodity, is a third higher than the price level of domestic goods, relative to some given year as a base. Assume that in country A the exchange rate on B is depreciated below purchasing power par. The high price of copper in B is offset by A's low rate of exchange on B. To the extent that a rise of export prices is offset by a decline of exchange rates, any abnormal stimulus to exports from B is counterbalanced. Deviations from purchasing power par need not cause trade disturbances when matched by corresponding deviations of export prices from domestic. Thus, whereas low New York exchange rates on Europe tend to cheapen the cost of European export goods, this margin may be partly or wholly wiped out by a rise of export prices in Europe. Depressed exchange may thus be offset by increased export prices.

When we examine the actual prices of export goods in international markets, we find that there are two broad classes of such goods, and that their reactions to depreciated exchange rates are different. These two classes of goods are, first, standard commodities having highly organized world markets and, second, specialty lines having limited world markets. The prices of the first type of goods are rather closely adjusted to depreciated exchange, whereas the prices of the latter type are very imperfectly adjusted. The United States Tariff Commission has made statistical studies of these different price movements, and its findings give a basis for conclusions. The Commission reports that "for standard products having a world wide market [for example, wheat, copper, cotton, tin, silver, pig iron] the exchanges have worked themselves out to a gold basis to such an extent that international trade is little disturbed by price discrepancies due to depreciated exchange. Articles having a free international market have about the same gold price the world over, transportation and taxes aside, no matter whether the quotations are in dollars, francs, pounds, or marks. A dealer in copper, wheat, or cotton, for example, may say with truth that the exchange situation has been discounted in the price of his products, and that only the daily fluctuations cause him trouble."

The second class of products fail to show a similar price adjustment. There are a great many industries producing goods largely for home consumption but partly for export whose prices are quite low when converted to dollars at current rates of exchange. To quote the Tariff Commission, "A dealer in highly specialized products, such as artificial flowers, toys, or articles of fashion, may say with truth that the depreciated exchange is almost a decisive factor in his business. Many articles such as aluminum goods, pottery, and chinaware, or specialized chemicals and metallurgical products, which either do not enter largely into international trade or whose prices are adjusted slowly, show a great divergence of gold prices in the several markets of the world."⁶ There is a steady, though gradual, tendency for this class of goods to

⁶ *Depreciated Exchange and International Trade*, 1922, p. 3.

pass over into the first class, the standard goods, with prices adjusted more and more closely to the depreciation of exchange.

For goods in which the gold prices have been approximately equalized in world markets there are no special profits to be made in international trade because of the exchange rates. For other types of goods, there may be large profits from importing cheap goods from paper money countries and paying for them in depreciated exchange.

When the money of a foreign country depreciates on the exchange markets faster than export prices in that country have risen, the cheapening of exports would seem to work a hardship on the paper country. But what seems to be the case need not follow at all, because labor and other costs of production lag behind price increases. Basic costs of production rise much more slowly than export prices. Hence the foreign exporter can afford to sell cheaply because his costs of production have not caught up with export price levels. This gap between costs of production of exportable goods and export prices makes a profit possible in spite of an adverse exchange rate. As fast as costs catch up with prices, this gap is eliminated. Then, if exchange is still depreciated more than export prices have risen, the exporter suffers a distinct loss.

The net effects of these divergences between export prices and domestic prices, and between costs of production and prices, are a tendency to a restoration of normal relations. Depreciated exchange tends to approach a normal level, the purchasing power par; export prices tend to approach a normal level, that is, to correspond with the general price level; export costs of production tend to approach a normal level corresponding with new price levels. The fundamental and long term forces combine to bring about a more normal relationship between all factors. Although this tendency may work slowly, nevertheless undoubtedly it is present as a definite and decisive movement toward normal conditions.

The Stabilization of Exchange.—Automatic correctives of exchange fluctuations, taken by themselves, are not enough. Constructive policies favorable to stabilization, deliberately entered into, are equally necessary. The most important of such policies, therefore, require examination.

(a) At the outset it is necessary to stop inflation. As long as a nation continues to print inconvertible paper money, the internal value of its currency cannot be stabilized. The mere prospect of further inflation causes exchange rates to depreciate in anticipation of the new paper issue. Confidence in ultimate redemption of the paper is weakened; and uncertainty about future money values causes the wildest exchange fluctuations. Germany suffered from more extreme fluctuations on the exchange market than any other country, and largely because her inflation was worse and promised to continue unchecked. Austria, on the other hand, made her first progress toward stable money only when, under supervision of the League of Nations, she brought her issues of paper money to a halt. The same observation is true of Hungary. Practically all nations on depreciated paper money suffer to

some degree from this same cause. A country must first be able to control the quantity of its money before there is any hope of giving the money a stable value. This control applies to bank credit as well as to government notes, and requires the joint effort of banks and governments.

(b) Secondly, balanced budgets are necessary for stabilization. Inflation itself is largely due to the difficulty which a government faces in balancing its budget. When current state expenditures exceed current revenues, governments incline to resort to the artificial creation of fresh purchasing power by printing new issues of paper money. The method of meeting a deficit which is easiest for the time being is to print more paper notes. The remedy for budgetary deficits is twofold: restricted expenditures and increased revenues. The restriction of expenditures may take place in several ways. Armaments and military expenditures must be cut to a minimum. Unemployment doles, subsidies on bread, coal, or housing, require drastic scaling down. Government operation of railroads and postal services at rates too low to cover costs of operation must be abandoned. These lines of economy were especially applicable to post-war European countries, but the principle of restriction of expenditures as a means of preventing deficits has general application to all instances of depreciated paper currencies. At the same time, it is just as essential to maintain taxes and revenues at as high a point as possible without injury to the country's economic life. While a country is in the initial stage of its effort along these two lines, it may be necessary for outside countries to make a loan for a year or two while the process is becoming established. This need is illustrated in the restoration of Austria and other European countries to normal budgets.

Once the internal value of money is stabilized, two consequences for exchange tend to follow: one, the purchasing power par itself remains at a settled point; the other, the deviations of actual rates from par become very small. The certainty and confidence which are thus reintroduced into the whole field of finance and commerce are of the utmost importance.

(c) Although the forementioned policies are necessary to stabilization of exchanges, nevertheless at best the paper exchanges cannot attain the degree of stabilization which is possible where the gold standard fully prevails. Paper money exchange even under favorable conditions is still inferior to gold standard exchange. Hence the ultimate goal of stabilization demands a return to some form of the gold standard. The bitter experience of all countries with depreciated paper has brought practically all of them to the point where they wish to restore the gold standard at the earliest possible moment. However, the various nations are at a loss to determine the best method of bringing about that goal. For a few countries, particularly England, the depreciation of paper did not go so far but that the pre-war gold standard could be reestablished. For countries where the depreciation of paper has been carried to extremes, the only apparent hope of restoring the gold standard lies in

fixing a rate of redemption in gold which corresponds to present money values. The alternative is deflation of prices, but this is impracticable for most of the nations because of the hardships which would be worked upon debtors under a sharply falling price level. Either *devaluation* of the money unit, or *deflation* of prices is a prerequisite to the gold standard at pre-war levels. The prime essential to a gold standard is that the gold should have a fixed price of redemption in the country's general currency. It does not matter vitally whether this ratio is the pre-war par or some other. What matters is that some definite ratio be decided upon, presumably one that is not widely different from the actual current value of the currency. As soon as a fixed ratio of redemption is decided upon, there is a new certainty and confidence in the future. People know what to look forward to.

The restoration of gold redemption requires some form of international coöperation to insure an adequate possession of gold reserves by each nation. The position of the United States as holder of about half the world's gold supply necessitates that the United States should play a leading part in any such international coöperation.

Final stability of exchange requires the gold standard, but pending this return, and as a necessary preparation for it, a country has to effect as much stabilization as possible by stopping inflation and balancing its budget. This conclusion seems necessary under present circumstances, although there are certain authorities who advocate that the gold standard be given up as something which has outlived its usefulness. In its place they would put a paper standard, regulated in quantity of issue by the use of the price index. The objective would be a stable price level, maintained by restricted printing of paper money and by restricted issuing of bank credit through control of the interest rate. Whatever may be said in favor of this plan as something ultimately desirable, certainly there is no reason now to have confidence in the ability and willingness of governments to operate it successfully. In light of the monetary confusion and chaos since 1914, it would seem beyond reason to expect Congresses and Parliaments to bind themselves rigidly enough to scientific financial and economic laws to make such a system work. Owing to the incompetence of governments, it would seem altogether improbable that they could efficiently exercise any such economic function. This being the case, the safest reliance would seem to be a return to a modified form of the free gold standard.⁷

(d) Normal commerce and production are a further prerequisite to stabilization. First and fundamentally, normal trade depends upon a nation's productive capacity and its habits of consumption and saving. The war severely lowered the productive capacity of leading nations, and post-war conditions in Europe have been working very largely in the same unfortunate direction. Replacement of old capital destroyed and reconstruction in general depend first upon how large a volume of

⁷ For a statement of the case in favor of abandoning the gold standard, see John M. Keynes, *Monetary Reform*, especially chapters 4 and 5.

goods a country can now produce, and second upon how large a share of this production can be saved for investment in new capital. Whatever tends to prolong unemployment, inefficiency, and low productivity, tends to weaken a country's ability to reestablish normal exports and imports with the world. Abnormal trade balances cannot be corrected except as a country's production and consumption get back to normal.

Toward this same end, it is also necessary to free commerce from many of its artificial restrictions. Such restrictions include price discriminations favoring certain foreign countries and disfavoring others, artificially raising the prices of export commodities, imposing restraints upon the volume of exports or imports, and placing undue and excessive tariff rates on international commerce. Normal exchange rates require normal trade relations.

(e) Speculation in a country's exchange is an evil which requires correction. The case of Germany illustrates this process carried to an extreme. Germany sold huge sums of paper marks on foreign exchange markets. This dumping of paper money abroad not only depreciated the mark more than ever, but caused the most violent fluctuations that exchange has ever undergone. The practice has been adopted at times by other countries, but nowhere to the extreme and absurd degree found in Germany. Before stabilization can be hoped for, it is imperative that such a policy come definitely to an end.

(f) Finally, political stability is needed for stabilization. In post-war Europe, stability was delayed by the lack of a settlement of questions pertaining to reparations from Germany, and payment of the Allied debts. Such events as the French occupation of the Ruhr tended to undermine confidence and depreciate exchange values. The assurance of continued peace is indispensable to stability. Unstable domestic politics brings exchange fluctuations. Whatever weakens confidence in the ability of governments to function effectively has an unfavorable effect upon the exchange markets.

The experience of all countries with depreciated paper has been painful and costly, and has left them with the desire to restore stable conditions as rapidly as possible. How to give effect to such a desire is the problem of greatest difficulty. However, practical methods of stabilization can gradually be evolved.

The Place of Money and of Government in International Economics.—In summarizing the subject of world finance and currency, it is important to place emphasis where emphasis belongs. And emphasis properly falls upon two things: *money* and *government*. Instead of passing money by as an incidental factor, a mere medium of exchange governed by the laws of trade, we must make money a pivotal factor, a regulator of exchange governing in fundamental ways the course of trade. Instead of assuming that to restore production it is proper to attack directly the subject of production, we must assume that it is proper to attack the subject of sound money, because sound money is itself the chief prerequisite for the restoration of production. On the

other hand, it is impossible to deal effectively with either the subject of money or of production without at the same time placing in the forefront of our attack the economic functions of government. The custom of dismissing government as a purely political subject, excluded from the scope of economics, is nowhere more futile and harmful than in the international field. It is absurd to call land, labor, and capital the factors in production, with the inference that government is not equally a factor in production. Sound performance of the economic functions of government is absolutely indispensable to any start at international reconstruction. Endless confusion and chaos have persisted in the post-war world largely because of determination to keep up the delusion that politics is politics and economics is economics and never the twain shall meet.

In emphasizing the importance of money, it has been declared by Cassel: "It seems likely that the era of monetary chaos through which we are passing will become the classic example of unsound finance." The most noteworthy endeavor to cope with these problems of economic recovery, the report of the commission of experts headed by Charles G. Dawes, takes as the core of the problem the stabilization of finance, involving the reconstruction of currency and the reconstruction of financial budgets. The stabilization of the money factor is very properly made the central feature of the report. The paralyzing influences over the post-war world have been money debts and excessive money issue. The reparation debts of Germany to the Allies, the war debts of the Allies to each other, the internal debts of governments to their peoples, comprise a tremendous burden of debt entanglements which strangle repeatedly the endeavors to achieve economic restoration. The mass printing of paper money, the alternative flights of inflation and deflation, the violent fluctuations of money values, the mal-distribution of gold between nations, stifle one after another of the well-meaning attempts at economic recovery.

The various nations have often been instructed that they would be all right if only they would get down to work. Work, produce, get busy—such are the secrets of recovery tossed out to the depressed countries. But such slogans are bound to be futile. They utterly ignore the part which money plays in production. The force which holds the nations back is not a lack of land, or of labor, or of capital, or of executive ability, or of the will to work. The force which holds the nations back is the disruption of the intricate international financial system. It is the vast entanglement of debt owing and money printing. The resources are there, ready for use, but they are impotent because of the deadening influence of unsound finance.

The importance of government is emphasized by the obvious fact that almost the entire time and energy of the post-war governments have been devoted to the economic problems of the hour. The balancing of budgets is necessary before inflation can be brought under control. Government taxation and government expenditure are inseparably connected

with the printing of paper money. Tariff policies restrict imports and exports and force into existence abnormal balances of trade. Military armament, occupation of the Ruhr, gestures of war, destroy the elements of confidence and stability. Territorial settlements and the administration of the economic clauses of the Versailles treaty create as many difficulties as they solve. Government committees, conferences, and commissions run on in a never-ending series in the repeated endeavor to repair and stabilize the productive capacity of the world. The question is not whether there is to be politics or not to be politics, nor whether there is to be less politics or more politics. The question is whether politics is to be sound economics or unsound economics. Instead of dismissing the politics of the situation as irrelevant, the nations must accept politics as an integral part of modern production. There is no production without politics, any more than there is production without labor or capital. It is essential to recognize that politics among the nations of the world has basic economic functions to perform. Instead of rejecting governmental economic functions on the ground that they are merely politics, it is essential to rely upon these functions for every particle of progress that the nations hope to make toward economic restoration.

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CHAPTER XXXI

THE EXPORT OF CAPITAL

The Importance of the Machine Technique.—The modern production technology, by increasing the total volume of production, has made possible an excess of production over consumption. This excess is represented financially by the volume of annual saving and investment, and is represented physically by capital goods in such forms as machinery, railroads, factory buildings, or electrical equipment. Where the machine technique is highly developed, this supply of savings and capital is large, and it has been found profitable to invest a considerable part of the supply in foreign countries.

The countries most in need of new capital are the so-called new or backward countries. At the present time, South America, Turkey, China, and Russia are examples of countries needing capital. The sources of capital to meet their needs are largely the savings of the peoples of the United States, England, France, and other countries that have been highly industrialized by the machine technique.

There are, therefore, two types of countries,—those which export and those which import capital equipment. The former include the countries of Western Europe, Japan, and the United States. The latter include the balance of the world. Great Britain has been first in the export of capital equipment because she was first in the industrial revolution. Her foreign investments began as early as 1815, and at first were mostly in Europe and the United States. At the time, these countries were industrially the backward countries as compared with England. In 1857 England had about \$400,000,000 invested in American railroads. France, Germany, and other nations became foreign investors as soon as they had taken over the technology of the industrial revolution. The latter part of the nineteenth century and the first part of the twentieth was a period of marked expansion along this line, and by 1914 the estimated total of foreign investment was about \$40,000,000,000.

It is important to emphasize that this vast sum of foreign investment was chiefly attributable to the far-reaching effects of the machine technique of production. Without the great increase in productive capacity due to the spread of factory production and mechanical methods, the excess of production over consumption in home countries would have been small. This technique was the source of the capital supply which was sent out to the less advanced nations of the world, and was the moving force behind the great developments in foreign investment.

The Foreign Investments of Principal Countries.—The amount of investment by four of the principal capital exporting countries in 1914 and 1923 was approximately as follows:¹

Year	England	France	Germany	United States
1914	\$20,000,000,000	\$9,000,000,000	\$8,000,000,000	\$2,000,000,000
1923	16,000,000,000	1,500,000,000	1,600,000,000	8,000,000,000

The English investments were greater than those of the other three nations combined. England invested about one-half her pre-war annual savings in foreign countries, or an annual sum of about \$1,000,000,000. The grand total of England's foreign investments represented about one-fourth of her entire national wealth. The income from this enormous foreign investment was about \$1,000,000,000. The World War had the effect of reducing the foreign wealth of England by about \$5,000,000,000. Also, the war dried up for the time being the sources of new investment. As soon as post-war tendencies were free to assert themselves, England resumed her export of capital, although on a scale somewhat less than in former years. If England did nothing more than to reinvest abroad each year a part of her interest on foreign investments, her foreign wealth would show an important yearly increase.

The distribution of English investments is significant from a double standpoint: with respect to the location of investments by countries, and with respect to the kind of industry built up in the foreign country. With respect to location, 53 per cent of total English holdings in 1913 were in North and South America, 16 per cent in Asia, 14 per cent in Africa, 12 per cent in Australia, and only 5 per cent in Europe. English investments were characterized much more than either French or German by the fact that they were located, for by far the greater part, outside of Europe proper. Mainly due to this diffusion, English investments suffered much smaller loss from the European War. The countries receiving English investments have been the world's primary sources of foodstuffs and raw materials, and important markets for manufactured articles. Thus, English investments tended to develop ever greater sources of raw materials for her factories and ever wider markets for the finished product of her factories. With respect to the kinds of industry developed abroad, it is noteworthy that over 60 per cent of the

¹ Estimates by various authorities show considerable variation. Among the more reliable sources may be mentioned—Report by the Federal Trade Commission of the United States, *Coöperation in Our Export Trade*, Volume 1, pp. 69-173; Sir George Paish, *Journal of the Royal Statistical Society*, January, 1911; *Statist*, February 14, 1914, and *The Contemporary Review*, September, 1919; Sir Edgar Crammond, *idem.*, October, 1914, July, 1918; C. K. Hobson, *Export of Capital*; R. C. Leffingwell, *Manchester Guardian Commercial*, November 16, 1922; United States Department of Commerce, *Trade Information Bulletins* 144 and 215; McKenna Report to Committee of Experts on German Reparations, April 9, 1924.

total was devoted to railroad construction; about 14 per cent to mines, nitrates, oil supplies, telegraphs, telephones, gas and water works, electric light and power plants, canals and docks; and a like amount to real estate and investment companies, banks, breweries, and factories.² The primacy of railroads in export of capital is true not only for English investment but also for nearly all other countries.

French investments abroad in 1914 were predominantly in Europe or Northern Africa. Russia, Morocco, Egypt, and Turkey were favorite places for French investment. French capital was, therefore, placed nearer home than the British, and it was not so well diversified over the world. Moreover, the English ownership of foreign securities has been highly concentrated in the hands of the wealthier classes; whereas the French ownership has been widely diffused in small holdings among the mass of the peasants and the middle classes generally. Growing out of this is the further fact that the small French investor, in his desire for safety, leans heavily toward government bonds of foreign countries in preference to securities of private corporations. Pre-war French investments were being added to in normal years by about \$400,000,000, and the normal interest earned was also about \$400,000,000. In other words France was annually investing abroad a sum about equal to the annual income on her foreign wealth. The World War temporarily halted the expansion of French capital, but post-war developments indicate a gradual resumption of the normal capital export.

Although Germany ranked third in her pre-war holdings, nevertheless it was German rivalry and aggressiveness which chiefly alarmed the other nations. Having started the practice of foreign investment somewhat later than either France or England, Germany found many of the best fields already occupied. By an aggressive penetration, however, Germany placed large investments in Russia, Turkey, Roumania, China, and South America. The favorite German expansionist plan was the development of the South European belt covered by the Berlin to Bagdad railway. The war resulted in the loss of German control of the Berlin to Bagdad railway and in the loss of the major portion of other German foreign wealth.

The United States before the war was chiefly a borrowing or debtor country. About \$2,000,000,000 of United States savings were invested abroad, but over against this were European savings of about \$6,500,000,000 invested in the United States. The United States was heavily a net debtor. During the war, the United States bought back a considerable part of the foreign investments in this country and loaned vast sums to Europe for the conduct of the war. In addition, the United States since the war has invested heavily in foreign securities. The total of foreign securities floated in the United States since the war, including new capital and refunding, has been estimated as follows:³

² Federal Trade Commission, *Coöperation in Our Export Trade*, Volume I, pp. 67-70.

³ *Federal Reserve Bulletin*, February, 1924, p. 94.

Year	Amount
1919	\$681,707,000
1920	621,512,000
1921	675,317,000
1922	897,208,000
1923	398,217,000
1924	973,011,500

The United States has become a capital exporting and a creditor nation. This creditor position rests in part upon the foreign war debts to the United States, which at the beginning of 1924 amounted to \$11,776,964,512. These war debts, however, represent not investment in foreign productive capital, but loans which were used up for military purposes. They are not an export of productive capital, therefore, although they govern our creditor position and our annual interest income in much the same fundamental ways. The estimated amount of American investments abroad at the end of 1923, not including these government war loans, was as follows: ⁴

Region	Amount
Canada	\$2,500,000,000
Cuba	1,360,000,000
Mexico	1,022,000,000
Central America and West Indies	148,000,000
South America	1,230,000,000
Europe	1,300,000,000
Asia	440,000,000
Total	\$8,000,000,000

It is significant that the concentration points for American investment are Canada and Latin America, particularly that part of Latin America bordering the Caribbean Sea. Within this latter region, the United States is the dominant financial power. The Caribbean region has become an economic sphere of influence for the United States, and in its capital resources it is very largely dependent upon the United States.

The Nature of the Investment Process.—The general principles of foreign investment are no different from those of domestic investment. When foreign investments give rise to special problems, the solutions require simply an adaptation of the fundamental principles underlying all investment to the peculiar conditions of the foreign field. This feature of the situation is well illustrated in the risk factor of investment. The safest foreign investments are foreign government bonds. The risk attached to such bonds is somewhat greater than the risk attached to domestic government bonds. However, it compares favorably with domestic corporation securities. For the period from 1882 to 1911,

⁴ United States Department of Commerce, *Trade Information Bulletin*, No. 215, p. 12. The estimated amount of foreign capital invested in the United States was about \$2,600,000,000 at the end of 1924.

the losses from foreign government bonds as compared with domestic corporation securities was as follows:⁵

Average annual default in foreign government bonds	\$0.39 per \$100
Average annual default in U. S. railroads	1.84 per 100
Average annual default in U. S. gas and electrics	0.37 per 100
Average annual default in U. S. industrials	2.07 per 100

In addition to investment in foreign companies, the United States has established abroad many branches of home corporations. The United States has a large number of branch banks scattered through Latin America. Big corporations have established foreign factories or opened foreign mines, in such products as machinery, meat packing, sewing machines, copper, or iron and steel. By establishing branches, the home companies keep a firm control over foreign operations and assume a high degree of responsibility for the safety of invested capital.

In further analysis of the nature of foreign investment, it is to be noted that the process involves the use of the foreign exchange markets. The technique of payment is subject to the principles of international exchange. Stability of exchange rates is urgently desirable, in order that a constant purchasing power of the money invested and of the interest return may be maintained. Fluctuations in the relative purchasing power of the money of lender and debtor countries severely increase the hazards of investment. This risk is especially high when the debtor country is not on the free gold standard, but uses silver or fiat paper currency.

The market organization for the sale of foreign securities consists chiefly of the stock exchanges and the investment banks. In 1914 the security listings on the London Stock Exchanges were about 48 per cent of the total listings, and on the Paris Bourse about 40 per cent. These markets had become true international stock exchanges. The New York Exchanges list a comparatively smaller number, although the list has grown substantially since 1914. In addition to the stock exchanges, international investment banks sell issues of foreign securities, either as individual banks, or as syndicates, or by formation of investment trusts. England in 1919 had about four hundred of these trusts. This type of institution minimizes the risks of foreign investment by applying the principle of diversification of risks. It obtains a variety of foreign securities, and instead of selling them directly to investors, pledges them as collateral security for an issue of its own notes or bonds. The debentures offered the public are in the name of the investment trust, and they are secured by a broadly diversified collateral. By this device, the element of safety is amply provided for. Congress passed a law in 1919, known as the Edge Act, authorizing the formation in the United States of such investment trusts. Several trusts have been formed under the law, but the extent of the movement has been nar-

⁵ *Annals of the American Academy of Political and Social Science*, Volume 88, p. 123.

rowly limited in comparison with the English practice. The investment trust is the logical and indispensable method for large scale foreign investment, and the development of these institutions in the United States is highly desirable.

A distinction is necessary between the terms "export of capital" and "import of securities." The financial process involved in the buying of foreign securities appears in the balance of payments of the United States as an *invisible import* or debit item. The loan, viewed as a money transaction, is, however, merely a means to the real end and aim, namely, a loan of goods. The bulk of the loan does not leave the United States, but is placed to the credit of the foreign country in a deposit account with a New York bank. The borrower draws checks on this account in payment for the capital goods bought in the United States and exported to the foreign country. *What is really loaned is for the most part capital goods which the borrower can use in building up productive industry.* When, on the other hand, the debtor pays interest on the loan, the receipt of the money by the United States is treated on the balance of payments as an export item. Underneath the money transfer, however, the debtor must pay for the most part in goods, and the receipt of the goods by the United States is an import item. To use H. N. Brailsford's words, "Lend money to the Argentine to build a railroad and what you really export is not gold but rails, while the interest comes back not as gold but as meat."⁶

Effects of Foreign Investment upon Foreign Trade.—The effect of capital movements upon the balance of trade in merchandise has already been explained in the chapter on the balance of international payments. The essence of this explanation is that a creditor nation, because of the large inflow of interest payments from its debtors abroad, tends to have imports of merchandise in excess of exports. *To receive interest payments, it is necessary, in other words, to develop a so-called unfavorable or adverse balance of trade.* Hence, the United States, as a great creditor nation, faces the prospect of an overturn of her trade balance, and the development of imports of goods in excess of exports. The chief factor in deciding when this overturn will come will be the future export of American capital. Heavy foreign investment of American capital would maintain the present favorable balance, or excess of exports, for a considerable time. Merely the reinvestment of interest on outstanding foreign loans would support the present favorable trade balance. If, however, the United States reduces her investments of new capital to a small figure, and interest payments keep rolling in, the trade balance must in the natural course of events become unfavorable. The United States in that case must accustom herself to an absorption of an excess of imports in her markets. The popular American notion that this would be harmful to the United States is highly fallacious. The overturn of the trade balance would be the only normal and natural outcome under the circumstances.

⁶ *The War of Steel and Gold*, p. 73.

In addition to the effect of foreign investment upon the trade balance, it is necessary to consider the effect upon the geographical distribution of trade. It is an accepted principle that "trade follows the investment." In some countries, the lender places in the terms of the loan a specific stipulation that the money shall be spent in purchases from the country of the lender. But even where no such requirement is formally made, the whole force of circumstances accomplishes the same result. In the new country, the engineers and contractors are likely to be of the same nationality as the lender. Branch banks in the new country, and industrial corporations manufacturing capital equipment in the old country, are interlocked through boards of directors and other connections. In summarizing this broad tendency, the Federal Trade Commission declares: "In general, the demand for foreign goods follows the nationality of the investment. It is the almost invariable rule that where such public utilities as railroads, light and power plants, street railways, and the like, are financed by foreign capital, the equipment and supplies must come from the country financing the investment. And in industries not of the public utility type, this rule largely holds true."⁷ The fundamental practical conclusion is that if the United States is to be able to compete with other nations in selling steel rails, manufacturing machinery, or electrical equipment to South America, China, or other foreign markets for productive equipment, she must invest liberally in the securities of the corporations in those countries.

Economic Functions of Government in Export of Capital.—The economic functions of government are nowhere more important than in the export of capital. Home governments lend their productive aid by three main methods: securing contracts and concessions, giving military protection to investment, and using investments as entering wedges for colonial expansion.

The embassies of the great powers give much time and attention to the procurement of concessions for business men of their own nationality. These concessions take the form of exclusive privileges to develop a mine, build a railroad, or exploit natural resources. Such concessions have often been wrested from the weaker nations by indefensible tactics of bribery, intimidation, and coercion. The weaker nations have been a scene of struggle for these concessions. China, Turkey, Morocco, Mexico, and other backward countries have been drawn into the concession system of exclusive privileges and benefits. Moreover, consular officials keep the home country informed of all business opportunities in the backward area. By concession hunting, by trade information, by political discrimination, the governments of the great powers aid the home investors and restrict all rivals.

By the second method mentioned, the home governments use force or the threat of force to protect foreign capital. It often happens that the governments of backward countries are very unstable. Revolutions occur and property is menaced. The police power of the large powers is then

⁷ Federal Trade Commission, *Coöperation in Our Export Trade*, Volume I, p. 173.

exercised to quell the disturbance. Marines may be landed; a battleship may be stationed in the harbor; troops may be sent into the country; customs houses may be seized and administered. Forceful interference prevents confiscation of property by irresponsible governments or temporary dictators. In certain cases, it seems that political troubles have been inspired as an excuse for interference, leading to ultimate annexation. However, disregarding this disreputable practice, we still find that it is the expected and approved policy to use force to protect property abroad. Armament is a kind of insurance against the risks of foreign investment. Some governments require investors to submit new foreign credits for official approval before they are finally offered to the public, in order that the governments may not be committed to safeguard unreasonable undertakings. American policy in this respect has varied widely. Roosevelt and Taft tended to give strong support to foreign enterprise, a policy which came to be called "dollar diplomacy." Wilson, on the other hand, inclined to a much more cautious use of governmental powers. As nearly as the prevalent attitude of the United States can be stated, it may be said, to use the declaration of former Secretary of State Knox, that "The Department of State will give all proper support to legitimate and beneficial American enterprises in foreign countries." There is, in brief, a natural partnership between government and capital to reduce the risk and hazard of the loan and to increase the profits.

Under the third method of government aid of foreign investment, the governments use foreign investment as an entering wedge for protectorates, annexation, or colonization. The expansion of colonial empires has largely been the outcome of investment undertakings. The rivalry between various nations in the investment frontiers is so keen that aggrandizement has very frequently eventuated. Imperialism is the ally of export of capital. More than any other economic factor, rivalry over export of capital has been the cause of war in modern times. "Behind the financier stands the diplomatist, and behind the diplomatist is his navy. When two embassies compete in Peking for a railroad concession, the issue may be determined by the balance of naval power in the North Sea." The use of mandates and of open door policies has been tried as a means of securing equal opportunity for all nations in dealing with backward countries. Although their extension is highly desirable, their actual effectiveness up-to-date has been limited. The alliance between government and export of capital is intimate, and without the alliance, export of capital would become too precarious for investors. Hence, we may draw the conclusion that the great movement represented by the export of capital is a distinct product of the positive economic functions of government in guiding the world economy of production.

The Spread of the Machine Technology Throughout the World.—Foreign investment has brought about the spread of the machine technology over the entire world. The lines of diffusion radiate from two centers, Northwestern Europe and Northeastern United States. From

these centers, there have poured out to the less developed countries textile machinery, boot and shoe machinery, locomotives and rails, metal working machinery, lumbering and mining machinery, engines, electrical equipment, and hundreds of other mechanical appliances. *What the export of capital has fundamentally meant has been the export of the industrial revolution from the industrialized countries to the undeveloped countries.* This export of the factory system to the backward countries has brought the entire world more and more under the sway of machine industrialism. The exporting countries were able to supply machinery on a large scale because of the development of machines to make machines. This development, in turn, rested upon the standardization of machine construction, the perfection of replaceable parts, and the invention of automatic machines. The automatic machines dispensed in large part with the necessity for skilled labor, and thus made possible the operation of machinery by the untrained labor masses of such countries as India, China, and Japan. The utilization of new forms of power, such as petroleum, or hydro-electric energy, and the new possibilities of electric transmission of power, have made possible the use of machinery in localities not supplied with coal. This makes unnecessary the localization of the factory system in strict proximity to limited coal areas.

About 80 per cent of the machinery exports of the United States now go to non-European regions. The introduction of this machinery has had important effects upon the merchandise trade between the old and the new countries. Japan, China, and India, for instance, formerly imported their cotton cloth in large measure from Europe and the United States, but now they are rapidly becoming able to manufacture their own supply of textiles, owing to the fact that they have imported the cotton spindles and weaving looms from Europe and the United States. Australia, Brazil, Argentina, meet their own needs for boots and shoes, by the use of machinery imported from England and the United States. As soon as these countries become self-sufficient in such lines of manufactures, they cease to have their former value as markets to absorb textile and other manufactures made in Europe and the United States. The markets of the highly industrialized countries therefore face the necessity for fundamental adjustments to new conditions abroad. The lines of world trade face the necessity of undergoing far-reaching modifications to accommodate themselves to the extension of the industrial revolution to the remote corners of the world.

Benefits and Dangers of the Export of Capital.—The export of capital is not without its disadvantages. Two of these disadvantages are of particular concern: first, the export of capital may drain the home market of needed capital; second, it may involve such an unequal distribution of income at home that wages are unduly low. In so far as it drains the home capital market, it reduces the national supply of such essentials as public improvements, good houses, better roads, automobiles, and improved machinery. England, for instance, suffered during

and after the war a shortage of housing for the working classes, due in part to the fact that England has placed her capital in foreign enterprise. Many authorities have sharply attacked the foreign investors of England, who since the war have continued to pour their capital savings into the foreign field, in spite of the desperate need for capital at home for working class housing. Where foreign investment is carried to this extreme, it can only result in impoverishment at home. Before the United States launches into a period of lavish export of capital, the country would do well to consider if it would not be better to devote more of such capital to better homes for the American workingmen, better schools, better city sanitation, better parks, better hospitals, better municipal recreation, better facilities for higher standards of living for the masses.

This raises the question contained in the second danger of capital exportation, namely, that it will rest upon a bad division of income. There seems to be a great deal of soundness in the assertion by Frank A. Vanderlip that in order to build up her enormous foreign wealth, England paid a "wage scale that averaged lower than the point at which the physical efficiency of labor could be maintained and made a red ink overdraft on the future, an overdraft on the physique of her citizens and an overdraft that consumed her house facilities."⁸ If foreign investment is to mean a bad division of income in the United States, it leads to a dangerous result, namely, the impoverishment of labor. Presumably a mild development of foreign investment would not have this drastic effect, but if the movement were carried to an extreme, the menace to labor's income would be inevitable.

Over against these dangers in the export of capital, we may balance some of the gains. First, it tends to maintain high profits for the investing classes. There comes a point in the evolution of the older industrial countries where a more lucrative use of the capital surplus can be made abroad in the less well developed countries than at home with the lower interest rates usually prevailing in a congested industrial system.⁹ If all savings were poured back into home industry in the older countries, the oversupply of capital would drive the interest rate down. Then all people who were living off their income from property investments would face a disastrous loss of income. The only way to avoid this outcome is to ship the capital abroad. The export of capital has undoubtedly tended to keep the interest rate materially higher than it otherwise would have been. It is conceivable that a more democratic distribution of income, which would give the masses the power to demand capital, would sustain the interest rate. But the present division of income in such a country as England would not sustain a demand for capital at home sufficient to keep up the interest rate in the home market.

A second gain is found in the form of the increase of productive power among the nations of the world. The spread of the industrial

⁸ *What Happened to Europe*, p. 36.

⁹ See E. R. A. Seligman, *Problems of Readjustment After the War*, p. 51.

revolution over the world develops a world economy. It expands the industrial unit from a national to a continental basis, and binds continents together by ties of economic interdependence. It internationalizes production. Nations begin to consider on what constructive basis all nations can be assured of *access to essential raw materials and to essential markets*. The United States has been drawn into this continental and world economy, and has grown out of her provincial notion of being purely self-sufficient. There is an obstacle to this internationalizing of industrialism, contained in the contemporary political ideas of strict nationalism. The nations are trying to adjust themselves to the new world economy, but are faced with the difficulty of reconciling economic internationalism with political nationalism. Political functions lag behind industrial functions, and this lag dominates a great part of the struggle and confusion in present-day economic developments among the older nations.

Great Britain, as the leading capital exporting country, is in a position to feel most completely the effects of this new economic solidarity between countries. The British position is well summarized by Sir George Paish as follows: "In the past century Great Britain has supplied the world outside these islands with nearly \$20,000,000,000 of capital, and the result of this action has been an expansion in the world's well being and in annual productive power to an extent that is difficult to convey in words. In the past century the world's aggregate productive power has increased over sixfold. The welfare of Great Britain is based not upon the limited quantities of the necessities of life which these islands can give her, but upon the productive power of the whole world."¹⁰

But although the export of capital advances the productive power of the world, the specter of excess populations is ever present. Europe supports an extra hundred million people because her export of capital enables her to draw upon the productive powers of the outside world. As rapidly as production grows, population threatens to grow just as rapidly, and to keep the standard of living low because there are so many mouths to feed and bodies to clothe. The benefits that might possibly be derived from the new world economy are sharply checked by population growth. The congested masses of people in the older countries, jostling each other for elbow room and struggling with each other for a livelihood, are a testimony to the most effective check there is upon the chances for individual benefit and gain from the new world economy.

¹⁰ *A Permanent League of Nations*, pp. 91-92, 122.

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CHAPTER XXXII

THE PRINCIPLES OF INTERNATIONAL TRADE

The Principle of Comparative Advantage.—It is to the advantage of a country to devote its powers of production to those trades where it is more efficient than other people; and to exchange its products for the goods of other kinds which other countries can produce more efficiently. Each country gains by specializing in the production of those goods which it is best fitted to produce. This specialization is simply a further phase of the division of labor, and is possible in an advanced degree only because of the stimulus given by the machine technology to the further division of labor. The geographical units in this division of labor may be productive regions which override mere political boundaries. In many cases such regions may be entire continents or broad climatic zones of different continents. The reason why trade between regions of different productive character is commonly termed “international” is because commercial policies as shaped by governments follow national lines, and because trading organizations are based upon national units.

Specialization by nations and regions tends to increase total productive capacity. If two nations abandoned the policy of specialization and tried to produce for themselves what they formerly imported, the total production of the two nations would necessarily diminish. Commerce is therefore a means not merely of efficient specialization, but of greater total production.

The specialization which underlies commerce likewise has the effect of cheapening production. The definite test of a nation's fitness for a certain line of production is the relative cheapness of the product on the international market. A country exports those things which it can produce more cheaply than others. A country imports those things which another region can produce more cheaply than itself. In general, those articles are sold abroad which can be produced at relatively low prices at home. Trade enables a country to obtain goods from the point where they cost the least.

In many types of commodity, there is an absolute advantage in favor of one country. This occurs, for instance, when certain resources are found exclusively within its borders, or when certain crops can be grown only under its climate. Except for commerce, other regions could not obtain these forms of commodities at all. In other types of commodities, either country may be able to produce the goods so far as physical possi-

bility is concerned, but one country will be able to produce them relatively cheaper, because of labor and capital efficiency. The comparative advantage is clear. In a third class of commodities, the comparative advantage in production is purely a differential advantage. Assume that country A can produce any one of ten different articles more efficiently and cheaply than country B. If the advantage is very wide in A's favor on the first five products, but only narrowly in its favor in the other five, it may pay A to confine production to the former class of articles and to import the latter class from B. Although A has a relative advantage in the latter class of goods, nevertheless it will pay A to import them because of the even greater advantage which A has in producing the former class of goods. The basis for the division of labor in this case is a differential advantage. Whether the basis for specialization be a *differential, relative, or absolute advantage*, the source of gain from commerce in any case is the comparative differences of productive powers in the various countries.

This general principle of comparative advantage is a leading part of the doctrine of the classical economists. Ricardo, John Stuart Mill, Goschen and others stated the main features of the principle, and Taussig has restated it with special application to questions of free trade and tariffs. As a generalization, it underlies practically all discussion of the advantages of commerce. Indeed, as a broad proposition there are few people who would deny the truth of it. The real issues which arise in international trade result mainly from the problem of the best methods of putting the principle into practice.

To bring the principle of comparative advantage down to definite application, it is necessary to inquire: Advantage to whom? The obvious answer has been, to the country as a whole: It is better for the country as a whole to employ its productive powers along those lines for which it is best fitted. But it does not follow from this that it is also better for the individual enterprise engaged in business. It does not follow that the private trader who has to earn a profit on his business will gain the greatest money return from such a division of labor between countries. It may happen that the greater profit to the business enterprise may be had by a restraint of international trade, either by protective tariffs or other obstructions. This situation gives a clue to the reason for a very interesting fact, namely, that in spite of the fact that leading economists have repeatedly demonstrated the gain from free trade to the country's total productive capacity, nevertheless business men as a group have remained quite unimpressed by the economist's arguments. The economist is talking about comparative advantage in total production for the country; the business manager is talking about total money return for a certain business enterprise.

The classical economists have largely worked on the assumption derived from Adam Smith that production for the maximum use of the community and production for profit were virtually equivalent. The underlying notion has been that in seeking the largest profit, the in-

dividual business is guided as by an invisible hand to the largest production of goods for the use of the community. If that assumption were true the law of comparative advantage would apply literally and irresistibly to the conditions of trade. But Veblen has gone to an opposite extreme, with the doctrine that, as a matter of actual fact in the workaday world, the individual business makes the largest profit only by restriction of production and arbitrary restraint of trade. If we discount Veblen's extreme statement of this matter, we still must recognize that there is a very wide foundation in fact for the assertion that maximum profit involves some necessary restraint of trade. Everywhere we discover business men setting up obstructions to a division of labor on the basis of maximum productivity for each country. The comparative *money* advantage is not identical with the comparative *production* advantage.

Consequently, it is well to modify the classical principle of comparative advantage by taking into account the manner in which money profits accrue. If business men were to arrange international trade upon the basis of having each nation produce those things for which it is best fitted, the inroad upon profits would be tremendous. The ultimate outcome might be that under the new order of things, once business had recovered, total income would be greater. However, the business world necessarily thinks in terms of business profits here and now, and whatever promises disaster to such rewards has to be rejected. On an idealistic basis, business should sacrifice everything to the ultimate consideration of increased productivity. But business cannot be run on vague ultimate hopes and aspirations. Not in any mercenary way, but as a matter of the essence of practical business necessity, earnings must be maintained. Given this necessity, it is impossible to push along the principle of comparative advantage any faster than considerations of money profits will permit. Working on the basis of the plain necessity of earning power, we must come to the admission that a nation can specialize in the production for which it is most fitted only in so far as such unrestricted production does not wipe out the indispensable money returns of the business units.

The Principle of Mutual Advantage.—It is to the mutual advantage of countries to exchange the goods which each is best fitted to produce. Every one can see that a nation's exports are a source of gain, but it is equally important to see that there can be no disadvantage in receiving useful objects from abroad as imports. Imports are just as advantageous as exports. It is just as blessed to receive goods from foreigners as it is to sell goods to foreigners. Imports are just as much a mutual gain to both buyers and sellers as are exports.

Not only is this true, but exports are made possible only because of imports. When the United States exports goods, her merchants require to be paid for those goods. How can they be paid? There is only one basic way, and that is by drawing upon the credits which foreigners establish in this country by shipping goods to us. Imports are our pay

for our exports. To put obstacles in the way of imports is simply to prevent our customers from paying what they owe us.

The viewpoint in this statement of principle is again that of the country as a whole. From that viewpoint, it is folly to restrict imports on the supposition that they are somehow harmful to the country. They are our income, and as such are necessary to our wealth. But if we substitute the viewpoint of an individual business enterprise, the nature of the mutual gain takes on a new appearance. The individual exporter is paid by a money transaction, and his immediate and direct concern is simply the financing of the sale. His personal return is not in the form of an import, but in the form of purchasing power put to his account as a bank deposit. The fact that ultimately it is the country's imports which build up the credits out of which such bank deposits are derived is of interest in a remote and indirect way, but the fact which rivets the attention of the exporter is his immediate payment by the credit method. The idea of mutual advantage is more or less meaningless to the exporter, because his pressing necessity is to make a profit for himself from the transaction, and this profit does not require any personal import of goods, but merely a personal money settlement.

Likewise, the importer buys goods for the sake of a pecuniary profit. If he uses the goods to undersell some domestic producer of the same line of profit, the domestic producer loses the market. The home business in this case loses profit, and may be driven out of existence entirely. However much the consumers as a whole may stand to gain from being able to obtain cheaper goods, the individual business man faces loss, and it is but natural for him to oppose such imports. The necessities of private profit may, therefore, compel an individual to obstruct the importation of cheaper goods, even though such importation might be to the advantage of the country as a whole. What constitutes mutual advantage from the *viewpoint of the individual* enterprise may be quite different from what constitutes mutual advantage from the *viewpoint of the country as a whole*.

A sharp contrast of viewpoints is apparent, both as to comparative advantage and as to mutual advantage. The viewpoint of private enterprise differs from the viewpoint of national total production. Making dollars for profit differs from making goods for use. Consequently, what is considered to be advantage in any particular case is in the nature of a compromise between two factors, *money advantage and production advantage*. Production advantage refers to what ought to be the basis of trade where the motive of business is to produce as many goods as possible, as cheaply as possible. Money advantage refers to what has to be the basis of trade where the motive of business is to produce goods only in amounts and at prices which yield necessary profits. A compromise has to be struck between the two. The merging of these two factors in the actual field of trade is a most complicated study. The following paragraphs attempt to give a factual basis for the salient features of such a study.

Geographical Distribution of Trade.—Broadly speaking, all the continents produce raw materials and ship them to Western Europe and Northeastern United States to be manufactured and redistributed. Not but that some manufactures are carried on in nearly all parts of the world, but that the concentration of manufactures exists to a degree which gives these sections the dominating influence in the trade of the world. Prior to the World War, about 64 per cent of the export trade of the world went to Europe. Europe did the bulk of the world's manufacturing. She produced more than half the world's iron and steel and had upwards of three-fourths of the world's wool and cotton spindles. She was the great source of consumable manufactures and the chief market for the products of every other continent.

Europe has long been the most important market for the foreign trade of the United States. For the five-year period from 1910 to 1914, Europe took 62.3 per cent of our total exports and furnished 49.6 per cent of our imports. The importance of Europe has since declined somewhat, partly due to a normal trend which was already evident in 1914, but also due to the abnormal effects of war and post-war conditions. Thus, in 1922, Europe took 52.4 per cent of our exports and furnished 31.8 per cent of our imports. Although this shows a relative falling off in the importance of Europe, nevertheless Europe is still by far our most important foreign market. The band of countries around the North Sea, with about 200,000,000 people, were in 1913 more important in the trade of the United States than the entire 1,300,000,000 of the rest of the world.

The diagram below indicates the per cent of United States imports and exports by continents, and brings out some important trends of trade.

FOREIGN TRADE OF THE UNITED STATES, GRAND DIVISIONS *
(Fiscal Years)

Grand Divisions	Average, 1910-1914	1919-1920	1920-1921	1921-1922	1922-1923	Average, 1910-1914	1919-1920	1920-1921	1921-1922	1922-1923
	Per Cent of Total United States Exports, by Grand Divisions					Per Cent of Total United States Imports, by Grand Divisions				
Europe	62.3	60.0	52.3	54.8	51.4	49.6	22.5	25.7	31.8	30.0
North America	23.1	20.2	25.3	23.8	26.4	20.5	28.4	33.0	26.9	26.0
South America	5.6	6.1	8.0	5.1	6.5	12.3	16.4	13.3	11.1	12.5
Asia	5.6	10.7	9.7	12.7	11.0	15.3	27.5	24.9	27.0	26.3
Oceania	2.2	1.4	2.6	2.2	3.0	1.0	1.6	1.6	1.2	1.9
Africa	1.2	1.6	2.1	1.4	1.4	1.5	3.5	1.5	2.0	2.4

* United States Department of Commerce, *Trade Information Bulletin*, No. 157, p. 10.

The trend of trade shows a mild decline with Europe, apparent before the war, and although disturbed temporarily by the war, nevertheless resumed since that time as a permanent trade tendency. Among the reasons for this decline may be mentioned the increase of manufacturing in the United States, thereby making the country less dependent upon Europe, and the elimination of Europe's middleman services as reëxporter for many goods brought from tropical regions, thereby making our trade with non-Europeans direct. The trend of decline has not as yet gone far enough by any means to destroy Europe's dominating influence in our foreign trade.

Africa and South America have not developed as considerable a trade with the United States as was expected. The relatively unproductive labor supply of Africa, due to tropical climate and to cultural backwardness, retards commercial progress. The sections of Africa in which trade has advanced have been those in which the white man has assumed leadership. Tropical South America lacks a labor supply of a character to make plantation methods of production effective, and the balance of South America produces largely commodities such as cereals and meats, with which the United States is already supplied by home production. In spite of this limitation, there is a substantial amount of trade with the United States, but not an expansion or growth on any remarkable scale.

The increases of United States trade have appeared chiefly in two regions,—first, the Orient; second, North America, including Canada, Mexico, Central America, and Cuba. In these regions the United States finds tropical and other products, chiefly raw materials, which she requires for food or manufacturing purposes. At the same time, the United States finds these territories to be potential markets capable of absorbing her manufactured goods. The labor supply, moreover, is of a type which is amenable to advanced production methods. For these reasons, there exists in these countries the basis for the development of mutually advantageous trade relations with the United States.

The geographical distribution of trade is traceable, not as a rule to any one cause, but to a combination of causes. The basis of comparative advantage between regions is a combination of differences in productive powers. The location of coal and iron resources in Western Europe, England, and Eastern United States has made possible their leadership in the machine technology and the régime of factory manufactures, modern transportation and communication. It is necessary to remember, however, that other parts of the world possess immense resources of undeveloped coal and iron. In explanation of the initiative shown by Europe and the United States in developing their resources, we must study the racial characteristics of the peoples, their stage of social progress, and the invigorating effect of their climate. Mineral resources, fertility of soil, rainfall, temperature, distance, language, customs, political influence and many other factors affect the workings of comparative advantage between geographical districts. The factor

of the character of the labor supply and the initiative and intelligence of the human element dominates all these combinations of differences. The active impulse to world trade has come chiefly from Europe. This human element, guided by the machine technology of production, has been the responsible force which has opened trade everywhere. All other regions have gradually come under this commercial influence. Some, like the United States, already rival Europe in industrial organization. Others are at the opposite stage where they produce only raw materials and exchange these for manufactures. Industrial and commercial evolution has seized hold of vast new territories, with the result that wide variations are to be found everywhere in the stage of productive progress and in the type of industrial institutions.

FOREIGN TRADE OF THE UNITED STATES BY GREAT GROUPS *
(Fiscal years are the units of comparison.)

Commodity Groups	Domestic Exports					Total Imports				
	Average 1910- 1914	1919- 1920	1920- 1921	1921- 1922	1922- 1923	Average 1910- 1914	1919- 1920	1920- 1921	1921- 1922	1922- 1923
Total	Per Cent of Total Domestic Exports					Per Cent of Total Imports				
	100.0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Crude materials for use in manufacture.	33.0	24.8	20.2	25.0	26.2	34.3	40.9	28.8	34.8	39.0
Foodstuffs, crude, and food animals	6.0	7.9	15.3	14.1	10.1	12.0	11.9	12.4	11.6	9.3
Foodstuffs, partly or wholly manufactured	13.8	19.1	12.2	16.9	15.0	11.4	17.0	23.1	12.8	13.4
Manufactures for further use in manufacturing . . .	16.0	12.5	10.8	11.1	12.5	18.1	15.3	14.9	15.6	18.8
Manufactures ready for consumption . . .	31.0	35.7	41.4	32.7	35.9	23.0	14.2	20.4	24.5	18.9
Miscellaneous .	.3	.2	.1	.2	.2	.8	.7	.6	.7	.5

* United States Department of Commerce, *Trade Information Bulletin*, No. 157, p. 17.

The Commodity Distribution of Trade.—The most significant basis for a commodity classification of exports and imports is twofold: First,

raw materials, including foodstuffs; second, manufactured and partly manufactured goods. In the early stages of a country's trade, the chief exports are foods and raw materials, and the chief imports are manufactured goods. In the highly advanced stages of a country's trade, the chief exports are manufactured goods, and the chief imports are raw materials and foods. The United States in the earlier part of the nineteenth century had the former type of trade, based upon her agricultural and extractive industries. By a gradual process of evolution, the country, without diminishing these basic industries, has added to them a vast expansion of manufacturing enterprise, and especially during the decade centering around the World War, has clearly displayed the characteristics of an advanced industrial state. The table on page 670 shows this industrial evolution of the United States, by bringing out the relative importance at various stages of national history of the raw material group of commodities as compared with the manufactures group.

Both comparative and mutual advantage to the United States tend to be secured by having the nation specialize more and more in the production of manufactures ready for consumption and letting other nations specialize in the production of crude materials for use in manufacture. This tendency appears to be general for the more fully industrialized countries. By such a division of labor between countries, the total production of all is increased, and each nation secures its supply of goods at the lowest cost.

The United States is both a great agricultural country and a great industrial country. The following table indicates the importance of agricultural products in the exports and imports of the country.

	Agricultural Exports Per Cent of All Domestic Exports	Agricultural Imports Per Cent of All Imports
1852-1868	80.9	29.1
1907-1911	53.9	45.2
1913	46.3	45.0
1924	44.2	48.3

It will be noticed that agricultural exports have steadily declined in relative importance and that agricultural imports have steadily risen. The decline of exports is largely due to the rapid increase in industrial population in the United States, and the resulting increase in home consumption of farm products. The increase in imports is largely due to the demand for tropical foodstuffs and raw materials to meet the expanding standard of living of the people. About one-half of our total foreign trade is agricultural.

The principal food exports of the United States are wheat, corn and pork products. The other countries chiefly relied upon by European

nations for their supply of staple cereals and meats are Canada, Argentina, and Australia. Russia before the World War exported a surplus of cereals, and in the course of time may be expected to do so again. The United States combines with these countries to furnish Western Europe with a food supply of breadstuffs and meats. The demand for such food products is the European demand, and the Kansas farmer depends in no small degree upon the European demand for his own prosperity. Whatever disturbs the normal consumption and buying power of Western Europe demoralizes the international market for the food exporting countries. Whatever disturbs the normal production of food surplus by the United States, Canada, Argentina and Australia threatens the huge urban populations of Europe with a food shortage. Mutual advantage in these respects has become absolute mutual interdependence.

The United States exports about one-fourth of her annual wheat crop, but with the growth of home demand due to increase of population and with the return of Russia gradually to her pre-war position as a cereal exporter, it is unlikely that the United States will continue to export as heavily as in the past. The corn crop of the United States is not, except for a very small percentage, exported directly. About 85 per cent of the crop is fed to domestic livestock. Some cattle products are exported, but the United States has become a net importer of beef. The form of livestock which enters chiefly into exports is lard and other pork products.

The food imports of the United States are chiefly in the nature of tropical products. The most important food import is sugar. In addition to her domestic production of beet and cane sugar, the United States draws the bulk of her raw sugar from Cuba, Porto Rico and Hawaii. The United States exports large quantities of the refined sugars. The importance of sugar imports into the United States rests in large degree upon the high per capita consumption of the people. The per capita consumption in 1922 was 102.9 pounds as compared with 70 for Great Britain, 35 for France, 12 for Italy and 5 for Russia. Coffee is the second largest food import of the United States. The entire consumption is derived from abroad, the principal source of the importation being Brazil. Tea is likewise derived wholly from abroad, the principal source being Japan and China. Coffee is relatively much more important as an import than tea, owing to the habit of the American people of consuming more than ten pounds of coffee to one pound of tea.

An enumeration of other tropical food imports would include fruits, spices, cocoa, nuts, oils, and drugs. For the most part, these imports are articles which lend variety or luxury to the American standard of living. To a very large extent, tropical food products are grown on plantations, owned and managed by men from the temperate climate. The initiative in the trade comes, therefore, primarily from non-tropical regions. The trade is of growing importance to the United States, and is the basis

for exports of capital and of manufactured goods for consumption in tropical countries. Owing to *proximity*, tropical Latin America is of greatest interest to the United States, but in so far as *other advantages* count, the tropical Far East is just as important, if not more so.

In addition to agricultural food products, it is necessary to consider agricultural products used as raw materials for general manufacturing purposes. The most important of such raw materials are those used for the manufacture of textiles, and the most important of these is cotton. The United States is the world's leading producer of cotton, and is an exporter annually of from 50 to 60 per cent of her production. Egypt, China, and India are also important cotton growing countries, but the United States produces fully three-fifths of the world's total. The United States imports a certain amount of cotton each year from these other countries, on account of the special grades which they supply. The great textile manufacturing nations of Europe,—Great Britain, Germany, France and Italy,—rely chiefly upon the United States for their raw materials. The United States is herself a great textile manufacturing nation and consumes about one-third of the world supply of raw materials in her own factories. Cotton is by far the most important single export of the United States. The prosperity of the South practically depends upon a normal foreign demand for the cotton crop.

The United States imports about half of the wool required for her manufactures of this material. The woolen manufacturing industries of the United States are thus dependent upon foreign sources of raw materials. The United States is even more dependent upon foreign raw materials in the case of the silk industry, for she consumes about two-thirds of the world's total silk production, and derives the raw product chiefly from China and Japan. Other fibers brought from abroad are flax, jute, Manila fiber, and sisal fiber.

Besides textile raw materials, the United States imports such raw materials as special grades of tobacco leaf, vegetable oils, hides and skins, paper and wood pulp, and crude rubber. Consequently leading industries of the country, including automobile manufacturing, leather manufacturing, newsprint enterprises, and tobacco manufacturing depend in whole or in part upon foreign sources of supplies.

Mineral raw materials are no less important than agricultural raw materials in determining the currents of international trade. Coal and iron are basic minerals in modern industry and trade. Foodstuffs and farm raw materials flow toward coal areas, and manufactures flow away from them. Where coal and iron are, there population concentrates and the greatest world markets grow up. The three major world regions of production and of potential resources are Northeastern United States, Western Europe, and Asia. The last mentioned region is rich in potential resources, but has not been developed and exploited as much as the others. The United States has the greatest producing region of any single country. The iron ores of the Lake Superior district are carried to the coal sections of Pennsylvania and neighboring states. The United

States is self-sufficient in coal and iron, and produces a relatively small surplus for export. Not more than 5 per cent of the total production finds its way into her export trade. The bulk of the international traffic in coal and iron centers in Western Europe. The United Kingdom is the leading coal exporting nation, her exports in 1913 having been more than one-fourth of her entire production. The Ruhr district of Western Europe is an important source of coal supplies for European industry. The coal exports of the United Kingdom in 1913 were about 10 per cent of the nation's total exports in value, but about 80 per cent of the total in weight. This relationship is of especial significance, because the typical British export is a manufactured good embodying high value in small bulk. Britain's outgoing ships require a commodity to serve as a cargo filler, and coal exports serve excellently this purpose, while at the same time they reduce the burden of freight cost which otherwise would have to be carried by the manufactures exported. Returning ships are laden with heavy raw materials and food products. Of iron ore exports from European sources, the chief exporting countries are France, Spain and Sweden. It is important to bear in mind that iron tends to move towards the coal beds, rather than coal to move toward the iron beds, for the reason that upwards of three tons of coal are required to smelt one ton of ore. The basic economic problem of Western Europe has been how to coördinate the Lorraine iron ore with the Ruhr coal. These two districts are as important to each other industrially as the Lake Superior iron and the Pennsylvania coal are to each other in the United States. Even Great Britain depends to a substantial extent upon iron imports to meet her industrial requirements.

The United States is the chief source of petroleum supplies for the oil consuming countries. To a large domestic production of crude oil is added a considerable import from Mexico and other sources. Oil refining is a leading American industry and exports of refined oils make up, next to raw cotton, our largest export class of goods. Future supplies of crude oil are more or less uncertain, but it is likely that the United States will become dependent for raw material upon foreign oil wells. There are known to be important reserves in Mexico, Russia, Roumania, Poland, Persia, and the Dutch East Indies. Copper is a major raw material which the United States produces in surplus amounts, and the electrical equipment of the world is dependent in large degree upon American copper exports. The United States is a producer of other non-ferrous metals, but not to the dominating degree characteristic of copper. We may conclude, from this review, that the United States is practically self-sufficing, so far as supplies of the major raw minerals are concerned. In this respect the United States enjoys a position of advantage over any other nation.

In the field of manufactures, the lines of comparative advantage for the United States are determined largely by two dominating factors: *rich natural resources* and *superior use of machinery*. Most of the manufactures which the country exports draw their raw materials from

the home farms, forests and mines. In turning these raw materials into finished goods, the methods of manufacture come under the machine technique, with a minimum of hand craftsmanship. The manufactured commodities for export usually depend, in varying proportions, on these two primary sources of international advantage. Illustrations would be canned foods, cotton cloth, or wheat flour, representing goods manufactured by modern machinery from farm raw materials; or machinery and automobiles, representing machine-made products drawn from domestic resources of iron ore.

The superior use of machinery in the United States begins with the *standardization of product*. Because of standardization, the automatic machine can be applied to manufacture on a large scale. The use of automatic machinery makes possible the substitution of mechanical processes using low paid, unskilled labor, for the old hand craftsmanship using high paid skilled labor. The reduction of labor cost is essential if the United States is to compete in price with other nations. Consequently, in lines of manufacture where the skilled artisan is still required, and where individual taste and skill cannot be eliminated by standardization of product, the foreigner has the advantage over the United States. The automatic machine is profitable under conditions of quantity or mass production. And mass production is possible only where there is mass consumption. The enormous domestic market of the United States provides this mass consumption, and thereby lays the foundation for quantity output by the automatic machine.

Two broad classes of manufactured goods have proved to be particularly suited to automatic machine production, namely, producers' goods, and semi-luxury consumers' goods. Producers' goods are adaptable to standardized production, and *machines to make machines* are highly developed. Such goods are illustrated in agricultural machinery, textile machinery, metal-working machinery and tools, and in office equipment such as adding machines, cash registers, and typewriters.

The consumers' goods which the United States is able to sell in competition with other nations are largely cheapened luxuries brought within the reach of the masses. Silk goods were a luxury for the rich until the use of American machinery brought them within the purchasing power of the bulk of the people. Automobiles were an exclusive luxury except as quantity production methods in American factories cut the costs of production down to correspond with the ordinary man's pocket-book. The United States excels in the manufacture of moderate priced automobiles, plumbing equipment, silk and woolen goods, millinery, boots and shoes, musical instruments, and household electrical appliances. By bringing these semi-luxury goods within the grasp of the average consumer, the United States developed quantity production by automatic machinery to a higher peak of perfection than any other country. The comparative advantage of the United States in these lines of production is the factor which puts the foreign market for these products largely in the hands of American exporters.

The Relative Importance of Foreign and Domestic Trade.—The United States exports about 10 per cent of the country's total annual production. This percentage varies from year to year. In 1914 it was as low as 6 per cent and in 1913 it was more than 12 per cent. A comparison with other countries shows that foreign trade is proportionately much more important for many of them than for the United States. The following table cannot claim to be strictly accurate, but does give approximations which are useful and significant.

Country	Exports, Percentage of Total Production *
United States	10
United Kingdom	23
Germany	23
France	18
Italy	12
Australia	29
Canada	29
Japan	20

* Estimate for the United States is based upon approximate average for years 1910-1923; for other countries upon such an average for the years 1913-1914.

Although these comparisons are of value, nevertheless they do not show the full importance of foreign trade to a country. To discover this importance, it is necessary to trace the per cent of exports to production of individual commodities. For some commodities exports are negligible; for others, exports are more than half of total production. The table on page 677 presents some of these differences between commodities.

In industries which export the greater percentage of their production, foreign trade dominates the prosperity of the industry. In industries which export the lesser percentage of their production, foreign trade may have almost negligible effects. But indirectly, the industries with high exports affect seriously the prosperity of all related industries. For instance, exports of motor vehicles affect the prosperity of iron and steel and other industries supplying raw materials. Exports of cotton manufactures affect the prosperity of the cotton farmer. The close interdependence of industries means that if high export lines lose their market, the harmful consequences will radiate to a great many related lines of business.

The workings of the price system cause this interdependence to be extremely sensitive. A small change in quantity of exports may cause a drastic change in the price of a certain commodity. When the prices of individual commodities are thrown out of balance, there ensues a maladjustment in costs of materials and finished products between all related lines of business. These price maladjustments, generated by quantity changes in a few high export commodities, tend to weaken the whole fabric of prosperity. The maladjustments are cumulative, and a comparatively small initial price dislocation may give rise to a com-

paratively great final business disturbance. For instance, we export about one-fourth of our wheat crop. A decline in foreign demand of 5 or 10 per cent may cut the price of wheat by 25 per cent, or more, and drive the price below the cost of production to the wheat farmer. An

Commodity	Per Cent of Total Product Exported	Year of Estimate (By Quantity or By Value)	
<i>Manufactures</i>			
Motor cycles	54.8	1921	value
Typewriters	29.7	1921	value
Sewing machines	20.5	1921	value
Bicycles	24.5	1921	value
Cash registers	12.9	1919	value
Shoe machinery	17.0	1919	value
Typesetting machinery	26.0	1919	value
Internal combustion engines	9.0	1919	value
Electrical equipment	9.0	1919	value
Mining machinery	16.0	1919	value
Cash registers	12.9	1919	value
Agricultural machinery	13.0	1919	value
Pianos	5.0	1919	quantity
Automobiles	5.9	1919-1922	value
Cotton yarn	3.0	1921	value
Cotton hosiery	6.6	1921	value
Leather boots and shoes	6.4	1919	quantity
Milk, condensed, etc.	39.0	1919	value
Rubber goods	5.0	1919	value
Lubricating oil	31.8	1923	quantity
Gasoline and naphtha	11.2	1923	quantity
Rosin	69.3	1923	quantity
Turpentine	40.6	1923	quantity
Steel rails	25.0	1919	value
<i>Raw materials and foods</i>			
Cotton	54.0	1919-1922	quantity
“	82.2	1922	quantity
Tobacco	38.1	1923	quantity
Wheat	25.0	1923	quantity
Corn	3.3	1923	quantity
Oats	2.1	1923	quantity
Pork and lard	14.2	1923	quantity
Beef and mutton .....	.4	1923	quantity
Fuel and gas oil	10.2	1923	quantity
Coal, anthracite	9.9	1919-1922	value
Coal, bituminous	9.9	1919-1922	value
Copper	63.9	1919-1922	quantity

agricultural depression ensues, and the purchasing power of farmers for all kinds of manufactured goods sharply declines. Fewer automobiles, fewer agricultural implements, fewer articles of clothing and of comfort are bought. The manufacturing industries in these lines suffer a severe

falling off in the home market. In turn, the iron and steel, lumber, and rubber industries which supply raw materials suffer a slack in domestic demand. The trouble spreads throughout the whole business structure, although its starting point was a mild decline in foreign demand for a single product. Price fluctuations are the lines of communication which carry such maladjustments from industry to industry.

The exportable surplus in any industry has an effect upon price and profit altogether out of proportion to the per cent which it bears to total output. The exportable surplus must be sold in the international market at the international price level, where the governing forces are world supply and world demand. The price thus set for the exportable surplus is also the price at which the domestic consumption must sell. The price of the surplus is the price of the whole product. The only power which can overcome this dependence upon the exportable surplus is monopolistic control of the home market. Some manufacturing lines have enough of this control to protect themselves from the most violent effects of price fluctuations of the exportable surplus, but *agriculture in particular is at the mercy of the price for the exportable surplus in world markets.*

Owing to the heavy overhead of fixed charges in industry, a decline in the demand for the exportable surplus may wipe out all profit in the industry. Many manufacturing enterprises rely for their entire profit upon mass production and quantity output. *The last 10 or 20 per cent of their output may be the part which makes the profit possible.* A fall in foreign demand which wipes out this last part of the output means a loss on the business as a whole.

In measuring the importance of foreign trade, therefore, many factors require consideration. Importance centers not merely upon the percentage of total exports to total production, but in the wide differences of percentage of exports to production in individual commodities. The fact that a small change in quantity of trade in an individual commodity may cause a large change in price, and that this price irregularity may spread to other commodities is of fundamental significance. The exportable surplus governs in large measure the prosperity of the whole of production.

Some Applications of the Principles of Advantage.—The principles of comparative and mutual advantage should gain in meaning from the foregoing survey of the factual basis upon which they rest. With the abstract principles and the description of trade phenomena both in mind, it is important to trace some of the main applications of the theory to commercial fact. The following analysis gives in condensed form some of these applications.

(1) A low wage country does not undersell a high wage country in international markets unless the lower nominal wage means also a lower *labor cost per unit of product*. Usually, the high wage country has made its labor so much more efficient, by the use of machinery and by intelligent management, that its actual labor cost per unit of product entering into export, has been low enough to compete successfully in

foreign trade. *Low or high wages is not the decisive factor, but low or high efficiency resulting in low or high net labor cost of production.* The United States has a higher wage level than any other country, but by superior use of machinery and superior efficiency, American products can be sold abroad in competition with the products of low wage countries.

(2) There is always a fear by peoples enjoying a high standard of living that they will be submerged with goods made by people under a low standard of living. The United States is frequently alarmed lest the country be flooded with cheap goods. *It is not however the standard of living, but the productive efficiency of the people which determines trade advantage.* One country may have a per capita income four times as great as another, and yet compete effectively in international trade by greatly superior efficiency. India and China have no trade advantage over the United States or Europe in those products where the latter countries use the machine technology to gain superior efficiency. Thus, progress in the machine technology counterbalances the inequalities of standards of living.

(3) The question is often raised whether a country with depreciated exchange does not enjoy an advantage in foreign trade. The assumption underlying the question is that depreciated exchange enables a country to undersell its neighbors. The United States, in particular, has been afraid that depreciated exchange would enable Germany and other European countries to flood her markets with cheap goods. In answer to this question, it is important to state that depreciation of exchange does not affect trade advantage one way or the other if the internal values of currencies have undergone a similar depreciation. Depreciation in itself gives no clue to harm or gain in foreign trade. *The only condition under which a depreciated exchange country will have an advantage in underselling its rivals is where the fall of exchange abroad is greater than the rise of prices at home.*

Two basic tendencies are at work always to wipe out such a discrepancy. The long term tendency is the tendency of rates to conform to the purchasing power par of exchange. When they so conform, there is no effect on trade one way or the other, even though the purchasing power par may be far below the old mint par. The short term tendency is the tendency for the individual prices of staple commodities with world markets, such as cotton or copper, so to adjust themselves to the exchange rates that they are about the same the world over. The United States Tariff Commission, reporting in 1922, found that in the midst of the many abnormal exchange rates, there tends to be "a similarity of prices all over the world of standard commodities."¹ The so-called premium on exports under depreciated exchange is, therefore, checked by the long term tendency of prices to conform to the purchasing power par, and the short term tendency of individual prices of staple goods to equalize themselves no matter what the exchange rates may be.

¹ *Depreciated Exchange and International Trade*, p. 64.

(4) *Changes in money values* of exports and imports may differ widely from changes in *their actual physical quantities*. The following table brings out these differences in the trade of the United States since 1913:

INDEX NUMBERS OF MONEY VALUES AND PHYSICAL QUANTITIES OF FOREIGN
TRADE OF THE UNITED STATES *
(Exports and imports of 1913 = 100)

Year	Exports		Imports	
	Money Values	Physical Quantities	Money Values	Physical Quantities
1913	100	100	100	100
1919	317	115	218	168
1920	330	107	295	169
1921	179	109	140	136
1922	154	101	174	189
1923	169	94	211	195
1924	185	109	199	190

* Based upon reports of money value of exports and imports by the United States Department of Commerce, and upon reports of physical quantities in the *Federal Reserve Bulletin*.

This table shows that in 1923 the United States bought almost twice the physical quantity of imports which she bought in 1913, but gave in return for them actually less than the physical quantity of her exports in 1913. Each unit of quantity of exports in 1923 bought twice as great a quantity of imports as did a unit in 1913. It is often considered to be a distinct gain for a country to give a small quantity of exports at a high price and to get a large quantity of imports at a low price. Quantity for quantity, the country is the gainer, but it becomes a serious question in the long run whether dearness of exports and cheapness of imports does not build up an abnormal and mutually injurious situation in the international markets. The dearness of American exports impoverishes the purchasing power of foreign buyers, and the cheapness of American imports means that the income received by foreign sellers is kept abnormally low.

But such a *price* discrepancy is not primarily a matter of premeditated export profiteering. It is a matter of abnormal differences in demand between countries. The foreign demand for American products is in large part an urgent and imperative demand; the American demand for foreign products is in large part an indifferent and lukewarm demand. Inequalities of demand relative to supply are in this case due to war and post-war disturbances to international commerce, and as long as the foreign demand for American goods continues to be greater than

American demand for foreign products, the abnormal ratio between quantities and values of exports and imports will tend to persist.

This opens again the question, wherein does the gain of foreign trade consist? If California sells a few oranges at a high price to Massachusetts, for a large quantity of shoes at a low price, California may make a temporary gain; but the United States as a whole neither gains nor loses. If the United States sells Mexico some high-priced manufactures in return for some low-priced crude oil, the United States may make a temporary gain, but North America neither gains nor loses. There may be a temporary sectional gain by the side which gives little and gets much in return, but there is no gain to the group as a whole.

The same principle holds true on a world scale, although few statesmen are willing to permit its application in world trade. In one breath it is asserted that another country's loss is our gain, and in the next, that what harms one harms all. We are free to admit in the abstract that the world is an economic unit, but we are unwilling to act upon such an admission when it comes to framing a tariff. Nationalism supports the view that our advantage is the disadvantage of the foreigner. This is a short-sighted and sectional view of advantage. The more permanent view would be that unless there is a mutual gain in trade, there is in the long run no worthwhile gain to anybody.

(5) It is frequently assumed that the greater the per cent of a nation's exports which consists of manufactures, and the smaller the per cent of its imports which consists of manufactures, the greater is the nation's gain from international trade. On this assumption, it is argued that the trend of increasing manufactures in the exports of the United States and decreasing manufactures in her imports is an encouraging sign of growing advantage in foreign trade. On this same assumption, it is also argued that the manufacturing nations of the world are the great gainers in international trade, whereas the agricultural nations, if not actually losers, are nevertheless comparatively small gainers. Such an assumption is without sound foundation. The nations which export raw materials gain from specialization in producing the things for which they are most fitted and letting other nations produce for them the manufactures for which the other nations are most fitted. The increasing proportion of manufactures in the exports of the United States is an indication that as a nation we are becoming more completely industrialized, but whether this is a good or a bad tendency is a debatable question and is not settled at all by the per cent of manufactures in our export trade. For most nations, the large percentage of manufactured exports is an index of the nation's dependence upon foreign sources for food and materials. The European nations with their congested populations can earn a livelihood only by huge exports of manufactures based upon imports of raw materials. Employment is furnished to excessive populations by this dependence, but the gain from the trade

is mutual and not one-sided. The trade percentages are an index of mutual interdependence rather than of disproportionate gain.

In this connection the ratio of the quantity of manufactured goods required to buy a country's agricultural goods is significant. It appears that for several years prior to 1914 the tendency had been for manufacturing nations to give larger quantities of manufactured exports in order to buy the same quantity of agricultural imports. The ratio of exchange between the two classes of commodities was working to the disadvantage of the manufacturing nations. England, for instance, bought her food supply at an ever-growing expense in manufactured goods. This ratio of exchange between the two classes of commodities governs the answer to the question: Do manufacturing nations or agricultural nations gain the more from international trade?

International Production and Mutual Interdependence.—With the expansion of world commerce, especially during the last half century, the productive capacity of each nation has come to rest more and more upon a wide international basis. The single nation, after having been touched by the machine technology and by foreign commerce, has ceased to be a self-contained producing unit. *Political boundaries and government control follow strictly national lines, but economic boundaries and productive capacity follow strictly international lines.* The advanced industrial nations draw indispensable raw materials and food supplies from abroad. This dependence upon foreign sources increases with the advances in science and in machinery. The economic basis of international politics is largely the strategy of getting possession of the best coal and iron mines, the richest petroleum districts, and the most favorable tropical colonies as sources of future raw materials. But this interdependence of nations is not based alone on a necessity for raw materials and food supplies; it rests fully as much upon foreign markets to serve as outlets for manufactures. Any shrinkage in these foreign markets is quickly reflected in unemployment and depression at home.

This mutual dependence applies equally to the countries which are still in the agricultural and extractive stage of production. The capital, the technology, the machinery for the expansion of their production, have to be brought from the outside industrial nations. The development of national resources is made possible by the importation of the machine technology. Moreover, the standard of living in these regions progresses in variety and quality to the extent that consumption goods manufactured abroad can be imported. Progress in the standards of consumption and in the adoption of modern technology of production both depend upon exchange with other nations.

The principle of comparative advantage as expounded by the classical economists treated foreign commerce as primarily a question of optional gain. A nation, so it was implied, could take it or leave it, but if the nation chose to take the path of greatest gain, then the conclusion was clear, that international division of labor was the one and only pathway to make that gain. Since these principles were first formulated,

the forms and methods of production have made revolutionary progress. Productive capacity has greatly increased, and the size of population capable of support within a nation has greatly increased. Everywhere under the machine technology populations have grown up which cannot be supported in comfort and safety on modern standards by a self-contained economic life. Europe, by her manufacturing, supports a *surplus* population about as great as the entire population of the United States. Destroy the trade of European countries and perforce the means of livelihood for more than a hundred million of Europe's population would be destroyed. Great as are the home resources of food and raw materials in the United States, nevertheless the advancing population and the growing importance of manufactures have brought this country to a point of close dependence upon tropical foods and special raw materials requisite for the maintenance of key and basic industries. The machine technology increases the population per square mile, but the inhabitants of each square mile depend upon the trade of the world for the means whereby they live. Hence we may no longer look upon trade as a mere matter of option or preference, a question of gain or advantage which we may take or leave as we please. We are drawn by a thousand bonds of reciprocal dependence into the commerce of nations, and we discuss the matter not merely as a question of gain or loss but rather as a question of vital necessity. Earning a living is an international problem for a larger and larger part of the world's population, and so great is the dependence of large blocs of people upon such economic relations that we are forced to visualize this mutual reliance as a first premise in all our thinking on international trade.

This interdependence is a comparatively new force in economic affairs, and the minds of statesmen and of business leaders have not become oriented to the new order of things. Everywhere men give verbal acquiescence to the doctrine that the world is an economic unit, that what harms one nation harms all nations, and that no one group can prosper unless all prosper. But simultaneously men proceed as a matter of fact to reject the self-same principle by all sorts of devices to penalize foreign merchants, cripple their trade, and restrict their prosperity. This they do because they are obliged to think in terms of competition for foreign markets, monopoly of foreign raw materials, and suppression of foreign business, as a means of keeping up the money profits of their home enterprises. The traditional notions of what must be done in order to sustain steady profits are so compelling that business finds it slow and difficult to abide in practice by the principle of mutual dependence between nations. The phenomena of money, price, and profit are dominant factors in the actual course of international trade. Trade is no longer a mere barter of goods for goods. There is an intervening factor, money and credit, which, working through price fluctuations and profit margins, compromises at every step of the way the laws of comparative advantage and mutual dependence. The pecuniary aspects of problems in foreign trade are developed more fully in the succeeding chapter.

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CHAPTER XXXIII

THE INTERNATIONAL ORGANIZATION OF PRODUCTION

Economic relations between countries have come to be much more than a trade convenience; they have come to be a production necessity. Formerly, the nation was the unit of production, and international trade was something superimposed upon it. Now, the continent or the geographic region is the real unit of production, and trade between its parts is the groundwork of the whole structure of production. Commerce between nations is not carried on merely for the immediate gains of commerce itself, but because it sustains the constant flow of raw and finished materials between non-political geographic regions, from farm and mine to mill and factory and consumer. The organization of production has come more and more to defy old political boundaries, and to operate on a continental scale.

The Principle of Pecuniary Advantage.—The basic principles of advantage in trade have already been stated under the head of comparative advantage and mutual advantage. In the statement of these principles, a distinction was drawn between advantage to the country as a whole and advantage to the individual business man who must make business earnings here and now. When we observe the actual field of modern trade, we discover a very wide gap between the basic economic laws of advantage and the methods by which business men and governments in practice attempt to gain advantage. The essence of these methods is to surround basic trade advantage with a mass of acquisitive advantages. These advantages consist of tariff restrictions, discriminations, selling tactics, political pressure, nationalistic use of banking and transportation facilities, concessions, and strategy of trade promotion. Such advantages are largely superficial, because their aim and intent is to restrict the tendency of each country to produce those goods for which it is best fitted and to sell in foreign markets those goods which it can make cheaper than other nations. The real objective is to protect home producers whether they are best fitted for their lines of industry or not, and to dominate foreign markets whether their goods can be sold there cheaper than goods of other nations or not.

Almost everywhere in business circles, the law of mutual trade advantage is denied a chance to work itself out. The tendency is to act on the assumption that imports are an evil to the receiver, and that only exports are an unalloyed good. Strong endeavor is therefore put forth to promote exports by a wide variety of methods, but to discourage and depress imports. The artificial interferences with the principle of mutual

advantage are many and powerful. They permeate every phase of foreign trade, and in the actual market appear to be the uppermost thought of merchants and producers. But in spite of their power and influence, trade between nations still retains the substance of mutuality. The reciprocal necessities of the nations override the host of artificial restrictions that are built up, and even though individual gain and nationalistic gain are the paramount conscious motives in trade, nevertheless mutual gain weaves itself into the great bulk of the trade carried on. The mutual gain which thus persists, and which underlies the currents of trade no matter how many artificial dams are built to halt them, gives health, growth, development, permanence, to the whole phenomenon.

Protection and the Tariff.—A protective tariff is a tax levied upon imports as a means of preventing foreign goods from competing with the home product. The tax may be either *ad valorem* or specific. The *ad valorem* duty is levied on the basis of a per cent of the value of the goods. The specific duty is levied on the basis of so many cents per bushel, or pound, or other physical unit.

The purpose of a tariff is to affect prices. It aims either to increase prices, or to keep them from falling, as the situation may require. The means of accomplishing this purpose is the means commonly characteristic of monopoly control of prices, namely, the artificial limitation of supply. *The tariff therefore operates to create a special type of monopoly.*

Many different arguments have been advanced in favor of the principle of protection. One of these arguments maintains that a tariff, particularly on manufactures, will *develop the home market for agricultural products*. The American farmer has often been taught that the greater the scope of home manufactures stimulated by the tariff the greater the domestic market for farm raw materials. This argument is perhaps true in the strict sense that the domestic market will be greater, but it must not be taken to mean that the total market will be greater. The total market will doubtless be less, since the country is being led by the tariff to carry on manufactures for which it is not best fitted. If the argument is construed to mean that a restricted home market is better than an unrestricted world market, simply because the home market is more subject to control, the theory is still weak, because the price of most farm products is set by world supply and demand. The home market for wheat and cotton does not escape the force of world supply and demand as long as the American farmer produces an exportable surplus of these crops.

A second argument holds that a tariff is needed to *develop industries in their infancy*. It is a commonplace fact that a country may be fitted by all natural conditions to take up a certain branch of manufacturing, but may be unable to make the start because foreign competitors already established would be in a position to crush the newcomer. The experience of the foreigner, his knowledge of the field, his possession of patents and of engineering skill, his good will reputation, the sheer momentum

of his industrial power, may be sufficient to destroy any mere novice in the field. Under such conditions, it is argued that the tariff will protect the novice while he is getting on his feet. Once he is established as a full-fledged going concern, he will be able to defend himself against all comers, and the tariff will be no longer necessary. This argument appeals especially to a country at that stage of its history where it is making a transition from an agricultural system to an industrial system of production. It acquired a great vogue in the United States during the formative period of our manufacturing industries in the nineteenth century. Friedrich List applied it to Germany while that country was going through the initial stages of the industrial revolution. As it is stated, the argument sees in the tariff an aid in the growth of a nation's industrial life. Nations at unequal stages of the industrial revolution have unequal advantages in trade competition. The tariff makes it impossible for advanced industrial nations to use their vested power to stunt the life and growth of the young industrial nations.

The difficulty with the argument has been that in putting it into practice, it has been used as a cover for all sorts of extravagant rates of protection. Industries which were able perfectly well to compete often sought super-advantages by pretending to need infant-industry protection. The United States can no longer claim to need this form of protection for most of her industries, since they are now firmly established. Certain individual industries appear, however, from time to time which claim the protection due to infancy. A conspicuous recent illustration is the claim of protection for the dyestuffs and chemical industries until they shall be able to defend themselves from German competition. We may concede that the infant industries argument is sound enough when applied within reason, but that what it tends to mean in application is too often an exaggerated protection and an excessive tariff wall.

An argument closely related to the infant industry one is the *vested industries argument*. After an industry has once been established, it puts up the claim that since it has been encouraged to establish itself, the only fair treatment from the government is a continuance of tariff protection to guarantee its existence. An industry which claimed protection at the start as an infant, will, when it reaches adulthood, claim protection as a vested interest. A vested interest is a right to continue in business with the privileges and aids necessary for that continuance. It is not a moral right nor a legal right, but a business right, and if a proposed cut in the tariff threatens to enroach upon it, the business so menaced claims that it is being discriminated against, weakened, confiscated. If this argument is used, as it often is, to defend an industry which is not well fitted to the country, it simply means that the country as a whole loses in order that certain individual producers may gain. If the argument is used, as it may well be, to maintain a reasonable amount of stability in production and to prevent violent transitions from one line of production to another, it has much to be said in its favor

Two arguments have been used to prove that the tariff is a good thing for labor. The first of these runs to the effect that *the tariff will guarantee employment for labor*. If unemployment exists, the claim is made that the cure lies in a protective tariff. Superficially regarded, the contention is plausible. If cheap imports of cutlery are allowed, the workmen in American cutlery factories will be forced out of employment. Given time to make the adjustment, these same workmen might find employment in other lines of manufacture where the American product is cheaper than the product of the foreigner. The transition in that case would be from an industry where Americans were not fitted to compete with foreigners to an industry where Americans could compete. But this transition would take time, and during the interim, the workmen would be unemployed. Hence, we must analyze the argument as to creating employment by drawing two broad distinctions. First, the tariff would keep the cutlery labor employed in the cutlery business, but it would give rise to a smaller total employment because the labor would be employed in a trade where its efficiency was low. The total of employment would be greater if the cutlery laborers transferred to a trade where their efficiency was superior to that of the foreigner. *The first distinction is between diverting labor to a line of work for which it is poorly fitted and transferring labor to a line of work for which it is best fitted, thereby increasing the total of employment. The second distinction is between immediate employment and long run employment.* The tariff may often help to give more immediate work to labor, but in the long run it is calculated to have the opposite effect. It is the central motive of protection to make individual business gain by contracting and restricting the total business done. The tariff method is in essence the monopoly method of an artificial limitation of supply and production. Surely we cannot restrict production and increase employment at the same time. Every bit of employment that is created in some favored industry is more than offset in the long run by the greater employment that might have been created by developing an industry where the country enjoys a genuine comparative advantage. The argument of creating employment is in the long run simply one form of the "make work" fallacy, with the difference that in this case it is used by business men to justify their tariff restriction of production instead of by workmen to justify their union restriction of production.

The second form of tariff argument for the good of labor is that the tariff keeps wages high. It is claimed that if American labor were not protected by a tariff wall, it would be forced down to a wage level corresponding with that of the Italian or the German, or even with that of the Japanese or Chinese. It is argued that the tariff equalizes the differences in money wages, and therefore saves the laborer of the United States from the devastating competition of the European and the Asiatic. The argument appears to be sound in the strict sense that the tariff keeps wages high in the particular industries that are protected. But it is unsound when it is used to imply that the tariff keeps wage incomes for

labor in general high. The particular wages of protected industries are kept high at the expense of restricted production for industry as a whole. The laborer's income on the average cannot rise faster than the volume of production, and when a tariff is used to keep prices high by limitation of production, the laborer's income is being limited correspondingly. The fundamental explanation of an average of high wages in the United States is not the tariff at all, but the country's excellent natural resources, the education and training of the labor supply, and the superior use of machinery and scientific management. Wages are high because labor is effective, and labor is effective regardless of the tariff. In fact, the tariff lowers the effectiveness of American labor, since it draws the labor into lines of employment where its effectiveness is so low that it cannot naturally compete with the foreigner. The same labor, diverted to production of exports of a kind which American labor is best fitted to produce, and which would purchase from abroad imports of other kinds of goods which the foreigner is best fitted to produce, would be more effective. Consequently, our conclusion is that although protection may keep wages high in the individual protected lines, for the time being, nevertheless in the long run and for labor as a whole the tariff not only does not increase the effectiveness of labor and the wage level, but tends to make them less than they otherwise would be.

Still another form of tariff argument is found in the claim that the tariff makes a nation independent and self-sufficient in time of war. Various German economists were foremost in advocating that a country must develop home food supplies and other essential industries to the end that it might be self-supporting in time of war. The World War brought the English to a recognition of the fact that although England cannot be self-supporting in all respects in time of war, nevertheless the country can be self-supporting in certain "key" or "pivotal" industries. Among such "key" commodities may be mentioned synthetic dyes, spelter, tungsten, magnetos, optical and chemical glass, needles, thorium nitrate, screw gauges, and essential drugs. The United States is more nearly self-sufficient than any other of the great powers, tariff or no tariff. Yet even in her case, the World War drove home the embarrassment of her dependency upon Germany for dyes, Chile for nitrates, and various other countries for essential alloys in the manufacture of military equipment. The argument of military necessity must be conceded as long as the nations live in a world where war is an ever-present possibility. The economist, however, is free to observe that under cover of the military plea, protection for purely selfish purposes is all too common. It is this constant danger of tariff manipulation, under high sounding phrases, for the purpose of selfish aggrandizement, which makes necessary extreme caution in the application of the military necessity argument to actual practice.

The tariff is often advocated, moreover, as a defensive weapon against the practice known as "dumping." *This practice may be defined as*

selling goods abroad at less than their prevailing price at home. The mere fact that the foreigner may be able to flood the American market with cheap goods does not constitute dumping. It is dumping only when the cheapness of the goods represents a lower price to the American importer than the current price in the domestic market of the foreign exporter. The purpose of dumping may be either to get rid of a temporary over-production of goods which, if sold at home, would demoralize the home market; or to create a regular outlet for a manufacturer's surplus capacity of production, to the end that by running to full capacity the overhead burden of fixed charges may be kept low per unit of product; or to put out of business a rival manufacturer as a measure of cut-throat and destructive competition. Dumping has been widely practiced by most of the commercial nations. Although Germany has a record of extreme use and abuse of dumping, nevertheless England, the United States, and other trading nations have made substantial use of the practice. The United States has dumped abroad at cut-prices staple manufactures, and such specialties as sewing machines, safety razors, cash registers, typewriters, watches, and fountain pens. The objection to the practice on the part of the country that is the victim of dumping is that price cutting subjects the market to violent price fluctuations that are not warranted at all by conditions of production. It is a method of unfair competition which undermines stability in the market. One method of regulation of such unfair competition is outright prohibition of the action, and government supervision to enforce the prohibition. The United States passed a law in 1916 making a criminal offense of any participation in dumping by foreigners in the American market, where there is "the intent of destroying or injuring an industry in the United States, or of preventing the establishment of an industry in the United States, or of restraining or monopolizing any part of trade and commerce in such articles in the United States."

A second method of preventing dumping is the protective tariff. Following similar legislation by Canada and England, the United States enacted in 1921 and 1922 anti-dumping tariff laws. Whenever it appears that merchandise "is being sold in the United States at less than its fair value," there shall be imposed upon such imports a "special dumping duty" equal to the difference between its foreign market value and its price as thrown on the American market. The President of the United States is authorized to penalize such acts of unfair competition as dumping by imposing upon the merchandise an extra duty of not less than 10 nor more than 50 per cent ad valorem, or by forbidding outright the importation of the offending merchandise.

The more orderly way of controlling dumping is by regulating the practice as one form of unfair competition, just as in the domestic market, the Federal Trade Commission and the courts regulate unfair domestic competition. The tariff method is open to the objection that the tariff has as often been a cause of dumping as a cure. Industries would not be able to sell abroad at cut prices in the first place, if their

home market were not protected by a high tariff or by some other form of monopoly power. The tariff attack on dumping often becomes a matter of fighting monopoly with monopoly. Direct regulation of dumping because of its unfair and unsettling effects on trade is a method far less subject to abuse. In order that it may be made a fully effective method, there is need of international agreement and authority in the standards of regulation. The international importance of the problem amply warrants international coöperation in coping with it.

Finally, it is argued that a protective tariff is necessary to *equalize the cost of production between two countries, and in order to make the foreigner pay the difference in cost*. The latter contention is the protectionist's way of getting around the accusation that the tariff raises prices and raises the cost of living. He holds that the tariff comes out of the profits of the foreigner, and adds not a penny to the cost of living in this country. Although there is some foundation of fact in the contention for an occasional industry, nevertheless for the bulk of protected industries it is a specious and deceitful doctrine whittled out for purposes of popular propaganda. For the bulk of protected industries, the central aim of the tariff is to keep prices high. The contention about equalized cost of production is practically a negation of the basic notions of comparative and mutual advantage. The whole gain in foreign trade, from our standpoint, arises from the advantage of having other countries produce goods which they are more fitted to produce than this country, and of our exchanging for those foreign goods the product which we are more fitted to produce than are foreign countries. Each nation gains most when it produces what it is best fitted to produce and uses this product to secure from other countries what they are most fitted to produce. But when legislators propose to equalize costs of production, it really amounts to a proposal for wiping out all these natural differences in effectiveness of production, and creating an artificial equality in effectiveness. This artificial equality means that the country is wasting its energy upon lines of production for which it is least fitted.

Free Trade.—England is distinguished among the commercial nations as being the outstanding free trade country of the world. During the latter half of 1923, a great political campaign was fought out in England to settle again the issue between protection and free trade. The Liberal and the Labor parties succeeded in administering a decisive defeat to high protection, and in holding the country to the free trade traditions which took their inception with the repeal of the so-called Corn Laws in 1846. English leadership in world trade has, therefore, been built up in the absence of protectionism.

The great majority of economists would agree that England's anti-protectionism is sound economic policy. Economists are for the most part either free traders or, at the most, very mild protectionists. They adhere to the free trade principle because their point of view is that of the largest production of goods for the use of the country as a whole. The business man rejects the same principle because his immediate and

direct aim is net earnings in his individual business here and now. English experience would seem to indicate that there is nothing inherently and ineradicably incompatible between the two points of view.

The free trade argument may be summarized in the following analysis of the political battle in England in 1923:

“I. It is better to employ our capital and labor in trades where we are relatively more efficient than other people are, and to exchange the products of these trades for goods in the production of which we are relatively less efficient.

“II. There can be no disadvantage in receiving useful objects from abroad. An artificial interference with imports must either interfere with exports or involve an artificial stimulation of capital to leave the country. Our imports are our income. To put obstacles in their way is to be as crazy as a business man would be who tried to prevent his customers and his debtors from paying their bills.”¹

In the interest of sound economic method, it is well to draw the attention of the student to the fact that the method of presenting the economics of the tariff has to be the exposition of the arguments pro and con. After all, arguments are only arguments. There is little scientifically weighed evidence in the field which is capable of settling questions of fact beyond controversy. We must therefore content ourselves with as clear a statement as possible of the problem as a problem, and with a presentation of some of the principal views and opinions on both sides. The bias of the author is in the direction of a very restricted use of the protective principle, but it is recognized that the available tariff data are not sufficient to give a conclusive demonstration of the final truth or error of one bias or another.

The Method of Tariff Making.—For the purpose of taking the tariff out of politics and framing tariff schedules by scientific method, the Government in 1916 created a permanent board of tariff experts known as the United States Tariff Commission. The function of this Commission is not to determine tariff policy, but to compile the technical information upon which Congress and the President may the more intelligently determine tariff policy. It is chiefly a fact finding commission. It investigates the effects of tariff schedules, the nature of tariff policies of other countries, the costs of production and prices of commodities in various countries, and the administration of the tariff law. The tariff data goes to the House Committee on Ways and Means and to the Senate Committee on Finance, and to other parties which have a legitimate interest in the problem. Tariff policy originates in these Congressional committees. Hearings are held, at which representatives of different business interests make their pleas for protective duties. In both Senate and House, the bill as reported by the committees is amended any number of times, under pressure of those constituents who demand protection.

¹ J. M. Keynes, *New Republic*, December 19, 1923, and *London Nation*, Volume 34, pp. 110, 332.

Finally a joint committee irons out the inconsistencies and prepares a measure which will pass both branches of Congress. While the tariff is being ground out of this political mill, it looks anything but scientific. The data carefully prepared by the Tariff Commission are often ignored, and probably more often simply interpreted to make what special interests want them to mean. Log-rolling is common, since each congressman, in order to get votes for what his constituents demand, must vote for rates which other constituents are demanding of their representatives. Senators may be financially interested in the industries which they are striving to protect. Lobbying is reduced to a fine art. And the net outcome is, as Alfred Marshall has remarked, that the tariff tends "to lend its chief aid to those industries which are already strong enough to do without it."² The Tariff Commission represents a gain, it is true, in the refinement of classifications and schedules, and in the making available of useful information, but the determination of tariff policy is as much a matter of political log-rolling, partisanship, and favoritism as ever. Whatever case may be made out for protectionism in abstract theory, the actual tactics of tariff formation are disillusioning.

In the further effort to secure a tariff-making method that could be called scientific, recent protectionism has emphasized the so-called scientific principle of equalizing the costs of production at home and abroad. The tariff act of 1922 definitely incorporated the principle that duties should be adjusted "to equalize the differences in costs of production in the United States and the competing foreign countries." We have already questioned the soundness of this principle as a principle. We must also question its validity as a practical guide in tariff making. In the first place, politics and the pressure of constituents still determine which commodities shall be selected for the equalizing process, and which shall be rejected. There is little or no claim to scientific method in making such selection of the industries entitled to scientific protection. In the second place, after the industries have been selected, the finding of actual costs of production proves to be a most difficult undertaking. It is difficult enough to get order out of chaos in domestic cost accounting and to discover with any degree of accuracy the home cost of production. It is, however, beyond the power of the Tariff Commission to require uniform accounting in the factories of foreigners or to gain access to their records of production. Estimates can be made, but these are subject to wide margins of possible error. Moreover, even if comparative estimates of costs can be made today, and the tariff rates levied accordingly, the relative costs are changing constantly. As a means of keeping the equalization of costs of production up to date all of the time, the President is to be advised by the Tariff Commission of important cost changes and is authorized at his discretion to raise or lower rates, by not more than 50 per cent, as a means of readjustment.

² Quoted in *Selected Readings in International Trade and Tariff Problems*, edited by F. W. Taussig, p. 434.

Although this element of flexibility in scientific equalization is useful, it obviously does not overcome the fundamental limitations upon scientific accuracy in cost determination.

The Tariff Commission is a decided gain in tariff making, but too much has undoubtedly been claimed for it. It has compiled valuable information and has improved technical details of tariff writing and administration. But it cannot under present conditions eliminate the less savory features of tariff making. These tend to persist, as if they were an ineradicable trait of protectionism.

Recent Tariff Tendencies.—Protectionism took its inception in the United States with the tariff of 1816, which was in large measure an attempt to protect the infant manufacturing industries that had started up during the embargo period centering about the War of 1812. For more than a century, the tariff has been subject to alternate increases and reductions, depending upon the shifting political fortunes of the dominant parties. The nineteenth century closed with protection at a high point, in the form of the Dingley tariff of 1897. The decade following was the outstanding period in American history of big business and trust development, and the impression became widespread that the tariff fostered monopoly and was the mother of the trusts. Public opinion pressed the Republicans for revision downward, with the result that the Payne-Aldrich bill of 1909 was enacted. Far from being a genuine revision downward, however, this law if anything pushed the level of important duties higher than ever. In the years immediately following, the price level rose steadily, and this was reflected in a rising cost of living. The popular notion was that the tariff was the cause of the higher prices, and this notion was an important cause of the political overturn which brought the Democrats, under President Wilson, into power in 1912. The Underwood tariff of 1913 put a number of important necessities of life on the free list, and moderated the rates on a great many products which were not put outright on the free list. Following the World War, the Republicans came again into power, and in 1922 passed the Fordney-McCumber bill, which enacted the highest rates of protection the country has ever known. This act gives new protection to certain industrial infants stimulated by the war, such as coal-tar products, dyestuffs, glass, scientific instruments, and laboratory apparatus. It appeals to the farmers by giving high rates on agricultural products, and admitting free of tariff duties agricultural implements, fertilizers, and other farmers' supplies. It gives unprecedented extremes of protection to most lines of manufactures. The measure adopts frankly the principle of equalizing the costs of production between countries. A strong attempt was made to introduce a new principle of valuation, namely, American valuation. This principle would mean levying the duty on the basis of the price in the American market rather than in the market from which the commodity was imported. Owing to serious objections to the principle, a compromise was effected whereby valuation in the foreign market is retained unless

such valuation is impossible to obtain, in which case, at the discretion of the President, American valuation may be applied to particular goods. Unfair competition and dumping are checked, by the provision that the President may penalize offending goods by additional duties up to a maximum increase of 50 per cent or in extreme cases prohibit their importation altogether. The power of the President to adjust rates to equalize costs and to prevent unfair competition represents an attempt to make the tariff "flexible," an interesting experiment in tariff policy.

The American tendency to extreme protectionism is in harmony with a general trend found among many other leading nations. War has usually intensified the feeling of nationalism and of self-sufficiency, and the World War had marked effects in that direction. Practically all European countries revised their tariffs upward following the war. Even England, with all her free trade traditions, enacted in 1921 the Safeguarding of Industries Act to protect pivotal or key industries, and to offset the depreciated exchange rates with many countries. The elevation of the British Labor Party to power, however, held British policy closely in line with free trade doctrines in spite of the temporary outburst of protectionist sentiment immediately following the war.

Tariff tendencies in the present era are subject to one new set of peculiar circumstances. The German reparations account and the Allied war debts can be paid, for the most part, only in goods. But the creditor nations are unwilling to receive the goods, and as a mark of their unwillingness, they tend to surround themselves with impenetrable tariff walls. In the long run, if the creditors are to be paid, they must let the goods come in. Protectionism is the almost universal policy of the nations during the process of adjustment to these abnormal international payments, and yet eventually a choice must be made between scaling down the tariff walls, or scaling down the payments demanded from the debtor nations.

The Tariff and the Cost of Living.—Some critics of the Fordney-McCumber tariff have estimated that it adds to the cost of living in the United States by as much as \$3,000,000,000 annually. Although this sum is doubtless an overestimate, nevertheless it suggests the enormity of what is often called the "tariff burden." Precise measurement of the effect of the tariff on the cost of living has never been made. The effect would vary widely, depending upon the nature of the commodity and the conditions of supply and demand. Where demand in the United States is so *elastic* that any rise in the price of a good would result in a drastic falling off of sales, the tariff compels the foreigner to cut his export price so that tariff plus sale price will be no greater than former sale price alone. Under this condition, the tariff is said to "make the foreigner pay." This type of tariff effect is, however, minor in scope in proportion to the effects of the tariff as a whole. Where the United States normally has an *exportable surplus* of a commodity, without monopoly control, the tariff has little or no effect upon prices. Such farm products as cotton or wheat come within this class of goods. Where

the United States is wholly *dependent upon a foreign supply, and demand is inelastic*, the tariff tends to raise the price by at least the amount of the duty. Where the United States is *partially dependent upon a foreign supply*, the tariff tends to raise the price not only upon the imported part of supply, but upon the home grown supply as well. Such products as sugar and wool come within this class. Where the tariff takes its full effect, it tends to raise prices not merely by the amount of the duty, *but by margins of profit on the duty as well*. Such goods as textile manufactures often come within this class. Taken as a whole, the tariff tends to affect the cost of living by an amount considerably in excess of the revenue received by the government.

The Tariff and Agriculture.—The American farmer has hoped for much from the protective tariff and has received little. As long as his principal staple crops, such as wheat or cotton, are produced in excess of home demand, and provide a heavy surplus for export, the price is fixed by world supply and demand. *The tariff can change the supply and demand of a single nation, but it cannot materially change the supply and demand of the world market.* Consequently, the tariff has done little to raise the prices of staple crops to the American farmer. Its effect has been confined to such products as sugar or wool, where the American farmer supplies only a fraction of the domestic demand and has no exportable surplus. Although the tariff does not improve the prices of most of what the farmer sells, it does raise the prices of many of the manufactured goods which he buys. The tariff raises his cost of living without raising his income. In addition, the tariff, by lessening imports, serves to lower Europe's purchasing power in American markets, and this lessening of the farmers' foreign customers' buying power has made the prices of farm products lower than they otherwise would have been.

In order to overcome these tariff difficulties, farming interests have developed a plan of valorization of their products. Under this plan, the government would buy up the exportable surplus of wheat, flour, corn, rice, or livestock "whenever the domestic price thereof is determined by the world price" and whenever the domestic price falls below a normal balance with the level of the general price index. The government would dump the exportable surplus on the foreign market at whatever price it would bring. Since the plan depends upon government direction, it obviously cannot be put into practice until Congressional adoption can be secured. It is difficult to blame agriculture for demanding that the tariff be supplemented by valorization as a means of making it swing farm prices upward, since manufactures are so conspicuously the beneficiaries of high prices due to high tariff. However, such a valorization scheme offers little to be desired as a basis of permanent trade relations. The dumping feature of the plan alone would arouse sharp foreign retaliation. The administration of the plan would be enormously complex. Certainly, a much sounder permanent basis for trade would be laid by reducing the exorbitant protective duties on

manufactures. This would reduce the cost of most of what the farmer has to buy, and so would increase the purchasing power of the farmer's income.

The Tariff and Prosperity.—The effect of the tariff upon prosperity in general is highly exaggerated in the popular mind. Political parties have indulged in so much partisan propaganda pro and con the tariff that the bearing of the tariff upon prosperity has been greatly overemphasized. An economic view of the facts finds prosperity or depression due to more fundamental economic conditions. The tariff cannot stop prosperity when fundamental conditions are favorable, nor can it create prosperity when fundamental conditions are unfavorable. The tariff cannot stop depression when fundamental conditions are causing it, nor can it create depression when fundamental conditions are tending to wipe it out. The fundamental conditions in these cases are the economic forces which are described elsewhere under the heading of the business cycle. No tariff, no matter how high, can severely injure the industry of the United States. The basic movements of prosperity and depression move rough-shod over tariff walls, and in large measure go their way regardless of or in spite of the tariff rather than because of it.

There are, however, certain bearings of the tariff upon prosperity, which exert their influence within moderate limits. The tariff does cause increased prosperity in the particular industries specially favored by it. An immediate and localized prosperity is, however, quite different from a more stable, normal, and diffused prosperity due to sound fundamental economic conditions. The tariff tends to produce the former, but not the latter. Moreover, in so far as foreign trade is an index of prosperity, the tariff reduces instead of increases prosperity. The first and direct effect of the tariff is to discourage and check imports. But as soon as we check imports, we by that much restrict the income and the buying power of the foreigner. And his restricted buying power means that he cannot purchase our exports as much as he otherwise could. A check on our imports is indirectly a check upon the foreigners' capacity to buy our exports. Consequently, our export industries suffer rather than gain from protectionism. Finally, the frequent shifts from low to high tariff and high to low, have an unsettling influence upon industry. As Taussig has well said, "The industry of the country can accommodate itself to any system, if once the system be settled. The country can adjust itself to extreme protection or high protection or moderate protection or even to free trade, and can go on prosperously under any one of them. But constant vacillations are a great evil. They are not an intolerable evil, for the simple reason that the influence of the protective system on our industrial system, whether for good or ill, is not so far-reaching as most people think. But an influence it has, and that influence is particularly bad in so far as it is inconstant and incalculable."³

³ *Tariff History of the United States*, p. 489.

Trade Bargaining and Discrimination.—The Tariff of 1922 adopts as a basic principle the following clause: "The United States offers under its tariff equality of treatment to all nations, and at the same time insists that foreign nations grant to our external commerce equality of treatment." There are two possible means of bringing pressure to bear upon foreign nations for the sake of securing this equality of treatment. The United States may start out with high tariff rates, and make concessions and reductions to those countries which grant equality of treatment. Or the United States may start out with basic normal rates, and impose additional duties or penalties upon those countries which fail to grant equality. The Act of 1922 adopted the latter of these two methods. When the President is advised by the Tariff Commission that a foreign country is discriminating against the United States, he may impose additional duties upon the offending merchandise up to a 50 per cent ad valorem increase or in extreme cases he may make an absolute prohibition of the imports. The process combines the basic principle of equality of treatment with genuine bargaining power and with flexibility and elasticity of administration.

Commercial treaties and diplomacy are obliged to deal in important ways with bargaining and discrimination. The United States has championed the policy of the open door in international trade. Diplomatic pressure and treaty making resulted in extending the open door policy of equal treatment for all traders in China, and the same principle has been applied to many of the colonial possessions of the United States. The open door does not mean free trade, but equal opportunity for all traders in the same territory. The latest significant extension of the principle was made in the Nine Power Treaty dealing with the problems of trade in the Pacific and the Far East. There have been, however, severe limitations upon the effectiveness of the policy. Too often the open door has been nominally accepted only to be evaded in practice. Concealed discriminations often go on side by side with a formal hearty approval of the open door in principle. Moreover, the more recent tendency has been toward a repudiation of the principle itself. The United States Tariff Commission made a report in 1921 of world-wide tendencies with respect to the open door principle, and reached the following conclusion: "The open door policy has been losing ground steadily for twenty years or more. In this period, the establishing of preferential tariffs has been going on steadily."⁴

The system of preferences applies to the trade relations between colonies and their mother countries. Under preferential duties, the mother country seeks to control for home industries the markets and raw materials of its own colonies or self-governing dominions. This control is exercised through preferential import and export duties which tend to give the mother country more or less of a monopoly of the raw materials of the colonies and of colonial markets as an outlet for manufactures. The growth of this policy has become of far-reaching im-

⁴ *Colonial Tariff Policies*, 1921, p. 78.

portance since nearly one-half of the world's surface and one-third of its population is held in colonial status. France and Great Britain together hold more than 80 per cent of the world's colonies. The trade of the colonies has come to represent about one-fifth of the world's trade, and in many essential raw materials has come to dominate the world's production. Preferential control of colonial trade is a modern form of imperialism, and in accomplishing its end it becomes the antithesis of the principle of equality of treatment which underlies the open door. It engenders discrimination, retaliation, and trade wars.

Another feature of commercial treaty making is reciprocity and most-favored-nation clauses. Under a reciprocity treaty, nations grant each other low tariff rates or other trade concessions for their common and mutual advantage. Under the most-favored-nation clause, one country agrees to grant to another nation the same privileges as it grants to the most favored nation with which it trades. Ordinarily, the most-favored-nation clause amounts to a general reciprocity clause. A serious limitation upon the equalizing influence of such treaty clauses lies in the fact that they apply usually to domestic products of the great powers, but not to the products of their colonies. Hence, the system of colonial preferences is built up alongside the system of reciprocal rights and advantages in the direct trade between the mother countries. The whole program of retaliations and discriminations accomplishes more harm than good, and is a constant irritant to the good relations of the commercial countries. The international organization of production on a basis of peace and permanence would require a drastic restriction of such discriminations, and the wider acceptance of the principles of equality of treatment, mutuality, and reciprocity.

Agencies of Foreign Trade Competition.—In addition to the aforementioned factors in competition for foreign trade, there are certain essential agencies of competition which are of fundamental importance. These may be classified under the following heads:

1. The Economic Functions of Government.
2. The Facilities of Transportation and Communication.
3. The Facilities of Banking, Credit, and Exchange.
4. Industrial Coöperation and Combination.
5. The Technique of Foreign Salesmanship.

1. *The Economic Functions of Government.* The Governments of the several nations render indispensable productive aids to commerce. Governments enter into international treaties and the main subject matter of these treaties is the rights, privileges, and advantages of each nation's citizens in foreign commerce. Governments make peace and war, and no forces have the power to transform the conditions of world trade more completely than peace and war. Governments establish treaties of peace at the close of war, and no treaties are so far-reaching in their economic consequences as these treaties of peace. The Treaty of Versailles, for instance, redrafted the political and economic boundaries of Europe, levied the reparations burden upon Germany, and disrupted

the old economic organization of Europe in the endeavor to impose a new organization on the life of the continent. The League of Nations offers facilities for a gradual increase of international coöperation in controlling the economic rivalries of the world. One of its main weapons of power is the economic boycott of a nation which threatens to disturb the peace of the world. Special international economic conferences such as those writing the Nine Power treaty of the Pacific, and those dealing with the Allied debts or the German reparations account are of great importance. Diplomatic policies of governments exercised through Department of State or Foreign Office, and backed by the prestige of Army and Navy, are essential to the whole program of imperialism, colonial administration, protection of national rights under international law, and constructive coöperation in trade promotion. Through the Consular Service and the Department of Commerce, the United States Government gathers information on all kinds of trade problems in the foreign field for the benefit of American merchants. No small part of trade promotion is due to trade information which governments alone are in a position to acquire. Government construction of the Panama Canal illustrates the influence of government in determining trade routes. The Webb-Pomerene Act of 1918 permitting the combination and coöperation of corporations for the furtherance of export trade gave government backing to the necessary methods of self-help among business men themselves. The regulation of unfair competition in foreign trade, through the instrumentality of the Tariff Commission and the Executive, attempts to do for foreign trade what the Federal Trade Commission undertakes to do for domestic trade. This enumeration of the economic functions of government is by no means exhaustive, but it should suggest clearly that governments are factors in international production, that they are indispensable to sound commercial relations, and that what is needed for the future is not less government support of foreign trade but more skillful support and especially more support in the form of genuine international coöperation.

2. *The Facilities of Transportation and Communication.* Nations commonly attempt to foster trade by granting railroad freight rates on goods for export or import far below the rates for purely domestic shipment. Of more importance in fostering trade is the merchant marine. British leadership in world trade has been nourished at all times by the great British merchant marine. Germany's rapid rise in commerce before 1914 was made possible by her creation of a powerful merchant marine. Foreign steamship companies have been found to discriminate in favor of trade with their respective countries, and against trade with countries dependent upon them for freight shipping. Prior to the World War, the United States relied upon foreign ships to carry the great bulk of her overseas trade. The foreign companies constantly embarrassed American trade by delayed sailings, higher freight rates, betrayal of trade secrets, and many other discriminations. The needs of the World War resulted in the creation of a merchant marine by

this country second only to that of Great Britain. A large part of this merchant marine is government owned and operated, the administration being in the hands of the United States Shipping Board. Whereas in 1914 only 9.4 per cent of the exports and imports of the United States were carried in American ships, in 1922 36.5 per cent were carried in American ships. Although a great gain has been made in American shipping, the fact still remains that nearly two-thirds of American trade is carried in foreign vessels. This ratio stands in contrast with that of Great Britain, only about one-third of whose trade is carried in non-British vessels. The control of radio, wireless, cables, and air transportation is likewise of much importance in the development of foreign commerce. Transportation and communication shape the competitive advantages of nations in gaining their respective shares of the trade of the world.

3. *The Facilities of Banking, Credit, and Exchange.* Great Britain has an unequalled financial organization for the fostering of trade. In every port and market of any importance in the world, there is a correspondent, or a branch, of an English banking house. Germany, likewise, had built up before the World War a network of banks over the world, and these banks were the center of German strategy in aggressive penetration of all foreign markets. The United States before the war had relatively few foreign correspondents and national banks were forbidden by law to establish foreign branches. Under the more liberal provisions of the Federal Reserve Act, foreign banking has undergone a generous expansion, and although American banks are not as completely organized in the foreign field as British banks, nevertheless they are sufficiently expanded to reduce the handicap which until recently restricted American commerce. Banks aid trade by caring for the extension of credits, operating the markets of foreign exchange, organizing the buying and selling of drafts, collecting information on the credit standing of customers, promoting sales by interlocking directorates with industrial corporations, and by directly discriminating against rival nations in the financing of commercial enterprises. The fact that England had invested upwards of \$20,000,000,000 in economic enterprises in foreign countries, and that France, Germany, and other countries had also invested heavily, gave these countries a marked advantage in controlling foreign markets. Trade follows investments, and investment bankers are the connecting links between the two. The position of the United States has greatly improved by virtue of her marked increase of foreign investments during and since the war. Detailed discussion of this growth of foreign investment is given in a previous chapter dealing with the export of capital. Money conditions in various countries have profound effects upon trade. Inflation, depreciation, gold movements, price fluctuations, fiat paper money issue, debt and reparation payments, balancing of budgets, all of these are financial factors which determine comparative advantage in competition for world trade.

4. *Industrial Coöperation and Combination.* The individual merchant is unable to meet single-handed the task of competition. Combination, concerted action, coöperation, are indispensable to business men in competing for foreign markets. In the pre-war period, Germany carried the strategy of combination to a greater extreme than any of her rivals. Her merchants formed cartels which left the actual administration of production in the hands of the individual concern but which made agreements covering selling terms, limitation of output, prices, division of markets, and methods of pushing sales. Interlocking directorates united these cartels with the big banks and shipping companies. The aggressive selling tactics of these huge combinations received the firm support of the German Government. British export trade has been built up primarily by associations of merchants; by men not concerned with manufacture, but with buying and selling only. However, there are many important combinations of manufacturers to control their exporting directly without the intervention of any merchant middlemen. Trade associations and chambers of commerce are prominent. The syndicates in various French and Belgian industries provide an effective marketing organization for those countries. It has been against such organizations as these, uniting powerful groups of foreign industries, backed by the big banks, aided by efficient shipping lines, and supported by foreign governments, that American manufacturers and merchants have been obliged to compete. The Webb-Pomerene Act of 1918 exempted combinations of exporters from the anti-trust provisions of the Sherman and the Clayton Acts, and extended the right of exporting businesses to combine their agencies for marketing in the foreign field. Export combinations under this law must confine themselves to "the sole purpose of engaging in export trade" and must in no way restrain trade or enhance prices in the domestic markets. They must refrain from unfair competition in the foreign field, and to insure the enforcement of this provision the Federal Trade Commission is given powers of investigation and regulation over their trade practices. In addition to export coöperation under this law, American business has undertaken coöperation through the formation of a great number of exporters' and importers' associations, foreign trade councils, trade and manufacturers' associations, and chambers of commerce. Concerted action in banking is secured through the Edge Act and the Federal Reserve System. Gradually the United States has built up an organization of her export business which enables the country fairly to match her combination and coöperation against the united front of her foreign competitors. This coöperation in export trade is essential in order to secure for the United States the full benefit of her fundamental comparative advantages in the markets of the world.

5. *The Technique of Foreign Salesmanship.* Foreign salesmanship does not trust to the hope that the exporter who has the best goods at the lowest price will automatically get the order of the foreign buyer. On the contrary, the task of salesmanship is to sell, and this means to

use all the tactics and strategy of the psychology of salesmanship regardless of whether any genuine comparative advantage exists or not. The goods of one country may be poorer in quality and higher in price than those of its rival, but if the one country backs its goods with the right sales appeal, it will get the orders while its rival goes begging. Sales appeal involves such things as advertising for the creation of foreign demand, packing and marking of goods to suit the whim and prejudice of the foreign buyer, sending abroad travelling salesmen equipped with samples of goods to establish personal contacts, becoming familiar with the language, the habits, and the social customs of the foreigner, acquiring skill in sales correspondence, and deciding whether the most effective channel of distribution for a particular product is a commission house, an export merchant, an agent, or some other medium. All such policies create artificial sales advantages for particular nations. If at the same time they have comparative advantages in low cost production they are in a position to dominate foreign markets. But even if their costs of production are comparatively high, they may still hold the markets in their own control by superior tactics in pure salesmanship. The classic idea of fundamental comparative advantage requires to be supplemented by the modern idea of artificial advantage through cleverness and aggressiveness of sales appeal.

The Control of Essential Raw Materials.—The world is passing out of the stage in which competition is primarily a struggle for markets and is entering upon the stage in which competition is first of all a struggle for raw materials. The importance of trade to the great powers rests not merely upon the promotion of exports but also upon the procuring of essential imports of raw materials. The problems of trade are more and more problems of production as well as problems of sales. How to secure basic raw materials is everywhere fully as urgent a question as how to dispose of finished manufactured products.

The production of each basic raw material is confined to certain regions, and the supply of the rest of the world is strictly limited to what can be secured from these regions. Every important nation is deficient in domestic supply of some raw materials which are necessary for its industrial existence. And every important nation produces certain other raw materials in surplus sufficient to dominate their markets. British textile manufactures would be starved out if they could not secure American cotton, and the American automobile industry would be killed if we could not secure rubber produced within the British Empire. The exclusive natural monopolies of the various raw materials held by particular regions establish the closest interdependence between the productive organizations of all nations.

The United States is more self-sufficient in resources than any other nation. Consequently, when we observe the extent to which even she depends upon foreign raw materials, we are impressed with the vital dependence of less favored nations upon their foreign sources of raw materials. The following is a list of commodities for which the United

States is partially or wholly dependent upon foreign sources of raw materials:

Raw Materials for Which the United States is Wholly Dependent *	Raw Materials for Which the United States is Partially Dependent
Silk	Tobacco, special grades
Jute	Cigar wrapper
Sisal	Havana filler
Rubber	Turkish cigarette
Tin	Wool
Platinum	Hides and skins
Nickel	Manganese
Antimony	Chromite
Cryolite	Vanadium
Asbestos	Fluor spar
Quinine	Tungsten
Shellac	Mica
Camphor	Quicksilver
Manila	Graphite
Flax	Abrasive materials
Potash	Linseed oil
Sodium nitrate	Olive oil
Copra	Sugar
Cocoanut oil	Tropical fruits
Coffee	
Tea	
Cocoa	
Spices	

* For a similar itemization of raw materials for which Great Britain depends upon foreign sources, see Isaiah Bowman, *New World Problems in Political Geography*, p. 15; for a similar analysis of Germany, see H. G. Moulton and C. E. McGuire, *Germany's Capacity to Pay*, pp. 35-55, and Chapter IV.

At one time during the World War, the President of the United States Steel Corporation warned that the entire steel industry of the country would be closed down within six months unless manganese ore could be procured from Brazil. Some form of manganese is indispensable in the manufacture of steel of almost every kind. If the United States were denied access to foreign resources the price of home production would not only be prohibitive but our supplies would be quickly exhausted altogether. Chromium and vanadium are indispensable alloys for the manufacture of high-speed tool steels, automobile and airplane steels, projectiles and armor plate, and steel castings subject to heavy strains. It is idle for the United States to boast of her supreme richness in iron ores when her iron and steel industry can be crippled by a failure to obtain essential ferro-alloys from foreign mineral beds. Germany has the main potash deposits of the world, and Chile the main sodium nitrate deposits. The necessities of the war forced nations to improvise chemical processes of meeting their temporary requirement, but did not eliminate the permanent reliance of other nations upon the natural deposits of potash and nitrates. The chemical industries depend upon sulphuric acid, and for the making of sulphuric acid platinum is in-

dispensable. Platinum is essential in many manufacturing processes, in laboratory equipment, in surgical and other instruments of great fineness. Russia and Colombia have a natural monopoly of the platinum supply of the world.

The struggle in the Ruhr between France and Germany is a struggle for the mastery of the coal and iron resources of Western Europe. Japan has energy resources in coal, petroleum, and water power equal to less than one-five-hundredth part of those of the United States. China has, next to the United States, the greatest potential resources in the world. Consequently, Japan is vitally concerned in the disposition of mineral supplies in that country, upon which she is utterly dependent for whatever industrial strength she may possess. German policy in Turkey, French policy in Morocco, British policy in India, Egypt, South Africa, and Mesopotamia are accounted for largely by the dependence of the great powers upon foreign sources of raw materials. Foodstuffs and minerals hold the power of life and death over the productive organizations of modern states. The aforementioned instances of this vital interdependence between nations are simply suggestive of countless bonds of solidarity and unity which run through every phase of the world's production system.

Although this interdependence crosses all political boundaries, nevertheless the control of the essential raw materials is asserted on an exclusive, nationalistic basis. The resources of production are broadly international in their utilization, but their development and distribution are strictly under national authority. As a consequence, the method of control is largely determined by the forces of monopoly, discrimination, and commercial conflict. There are combinations of producers striving to exact high prices for raw materials and combinations of buyers striving to combat their endeavors. Export duties, government monopolies, preferential tariffs, and concessions for exploitation of natural resources are common forms of the strategy of control.

The new conditions call for new policies. International coöperation in various forms would seem to be the essence of the new policies demanded. The basic principle for such coöperation is adequate access to essential raw materials for all nations. It is unlikely that the rationing of raw materials will be required in peace times to cope with the situation, but there is pressing need for conference and agreement between nations on many vital questions. There is need for moderation in export duties and preferential tariffs on raw materials, and for restraint of protectionism and trade wars in such products. The details of the technique of international control and coöperation remain to be worked out, but the distinct recognition of the imperative need for international action is a primary and paramount forward move.

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PART VII

GOVERNMENT AND TAXATION

CHAPTER XXXIV

TAXATION AND THE PRODUCTIVE FUNCTIONS OF GOVERNMENT

The Productive Character of Government Activities.—The Physiocrats taught that the merchant was an unproductive agent. Only such agents as the mine and the farm were considered truly productive. We know today that the Physiocrats were wrong. We accept the merchant as a necessary productive part of our economic organization. But when we approach the problems of government, we tend to fall into the old Physiocrat fallacy in a new form. We commonly think of *government* as a *burden* on society. In reality, however, the expense of government is no more a burden than profit, interest, rent, or wages. They are alike expenditures for purposes of production.¹

Any enumeration of the economic functions of government suffers from an imperfect classification of activities. The following enumeration, while not exhaustive, is suggestive of some of the primary government activities.

1. *Private property*, which is the bulwark of modern business, is primarily a product of the law. As Roscoe Pound has stated, "Ownership is a purely legal conception having its origin in and depending on the law."² People too often think of property as merely the corporeal object, the piece of land, the factory structure. This corporeal or physical fact does, it is true, underlie the conception of property. But the essential idea of property goes far beyond the merely physical facts. *Property is a bundle of rights*. Most of these are legal rights, enforceable at law. One paramount right is protection against seizure of

¹ The three basic factors in production are land, labor, and capital. Government chiefly belongs under the heading of labor. The supervision, direction, regulation, compulsion, and control by government are manifestations of labor. It is a higher form of labor, for the most part, than manual labor, and is comparable with managerial labor. Taxes are a form of wages of management. In a broader sense, government pervades all the factors in production. It determines the meaning of property rights and so determines the uses to be made both of land and of capital. Land and capital in modern business are largely legal creations. In this broader sense, government is an integral part of all factors in production, whether land, labor, or capital.

² *An Introduction to the Philosophy of Law*, p. 224.

wealth. This right is so important that it is recognized in the federal constitution. The fifth amendment declares, "No person shall be deprived of *life, liberty or property* without due process of law." The fourteenth amendment declares, "Nor shall any State deprive any person of life, liberty, or property, without due process of law." In addition to the right not to be deprived of wealth, a person has the right to expected income from the property, to have access to markets, to buy and sell property, to make and receive promises calculated to lead to gain, to be defended from attack by foreign or domestic foes. This mass of rights is the essence of private property. Take away the guarantee of such rights, and private property is inconceivable. The government, therefore, performs a productive function by defining and enforcing the rights of property which are indispensable to modern business relations.

2. *Freedom of contract and security of contract* are business rights closely interwoven with private property. Roscoe Pound declares, "Property and contract, security of acquisitions and security of transactions are the domain in which law is most effective and is chiefly invoked."³

The Federal Constitution provides that "no State shall pass any law impairing the obligation of contracts." But more adequate than this restriction upon the States are the amendments guaranteeing that no person shall be deprived of liberty without due process of law. The courts have interpreted liberty to mean liberty of contract. Hence, the Constitution itself is a firm protection of business contracts. Business consists of a series of purchases and sales in the form of contracts. All credit instruments are contracts. Anything which would weaken confidence in the sanctity of contracts would destroy the foundations of business at a blow. Since the definition of freedom of contract, and the enforcement of that freedom, are the direct handiwork of the government and of the law, it must be obvious that the economic functions of government are in so far both indispensable and productive. The economic importance of the work of government is emphasized in the title of a study by John R. Commons, *The Legal Foundations of Capitalism*. The point which here requires particular emphasis is that the foundations of capitalistic business are *legal* foundations. This being true, we certainly cannot brush government aside as a mere nuisance or as a deadweight burden upon industry.

3. *Free and all-sided competition* is a cherished characteristic of modern business. The often repeated phrase is that competition is the life of trade. When we examine this life-giving competition, we discover at once that it is largely a product of the law. Not entirely so, because much of competition is the outgrowth of business custom. But even custom persists only when the law tolerates it. The law differentiates between fair competition and unfair competition. It restricts forms of monopoly which would constitute restraint of competition or which

³ *An Introduction to the Philosophy of Law*, p. 193.

would substantially lessen competition. With infinite pains, the common law has built up the patterns which competition may and may not follow. And statutory law and judicial construction of constitutions have created an elaborate system of standards and norms of competition. Competition is not fixed in any preordained laws of nature, but is the institutional creature of human laws and customs.

4. *Government ownership and operation* of certain industries is now an established fact. The post office is perhaps the most universally approved phase of government ownership and operation. Many states have deemed it best to have the government operate the railroads, and even where direct operation has not been reached, drastic control and regulation have been insisted upon. Municipal ownership of public utilities has become an extensive policy. Education is now largely a governmental function. Natural resources are in large part directly owned or controlled by government. Conservation of resources depends upon initiative and authority exercised by government. The building of highways, bridges, and streets and the development of harbors and waterways are for the most part the duties of government. Research and experimentation in government laboratories has come to be of great importance in furthering the improvement of industrial technology. Standards of weights, of measures, and of values, are decreed by law and administered by government. It is obvious that government ownership and operation are firmly established in industry in a great number of very important forms.

5. *The maintenance of peace*, both domestic and international, the upkeep of police force, army and navy, and the prosecution of war in time of need, have the most far-reaching economic consequences. Diplomacy between nations is concerned chiefly with commercial relations. Modern states are largely occupied with territorial expansion, the regulation of emigration, the access to markets and to raw materials, all of which are considered indispensable to the prosperity of the modern state. The balance struck between nationalism and internationalism, between armament and international coöperation, determines for better or for worse the economic destiny of peoples. The League of Nations is chiefly a mechanism for the amicable adjustment of economic disputes between nations and the Treaty of Versailles is fundamentally a scheme for the reorganization of international economic relations. The prevention of revolution and crime at home are of vital importance in the development and stabilization of business. The state of peace or war is the direct outgrowth of government policy and it conditions in basic ways the economic life of the times.

6. *Welfare promotion* has come to be a leading feature of government policy. Labor legislation includes minimum wage laws, compensation and insurance laws, eight-hour day laws, child labor laws, and laws requiring factory sanitation and hygiene. Public health is promoted by clinics, hospitals, publicity, and medical supervision. Community recreation is provided through public parks and supervised playgrounds.

Sumptuary legislation invades almost every nook and cranny of private life. Pure food laws and prohibition laws regulate what we can eat and what we can drink. Censorship decrees the clothes that we can wear, the literature that we can read, and the theatrical entertainment which we can see. The state has become an agency of social reform. Not all that it does results in social gain. Not all of its policies are wisely formulated. But in general, the weight of government influence has been cast decidedly on the side of social betterment.

In summary, we must recognize the manifold productive functions of the modern state. By preserving the rights of private property, by maintaining freedom of contract, by defining and enforcing the terms of free competition, by extending the sphere of government ownership and operation, by determining the state of war or peace, and by the direct promotion of social welfare, government exercises most important economic functions. Of course, government may exercise these functions inefficiently, and, in that case, the expense of government may be called a burden. But if it exercises the functions efficiently, the expense of government is no more a burden than are any of the normal expenses of production. Government is an indispensable factor in modern productive enterprise.

The Increase of Government Expenditure.—The growth of expenditures by the federal government is shown by the accompanying table:

ORDINARY EXPENDITURES PER CAPITA BY THE FEDERAL GOVERNMENT

Year	Amount of Expenditure Per Capita
1791	\$1.08
1830	1.26
1865	37.27
1870	8.05
1900	6.85
1910	7.54
1918	133.32
1919	181.77
1922	32.60
1924	32.00 (a)

(a) Estimate.

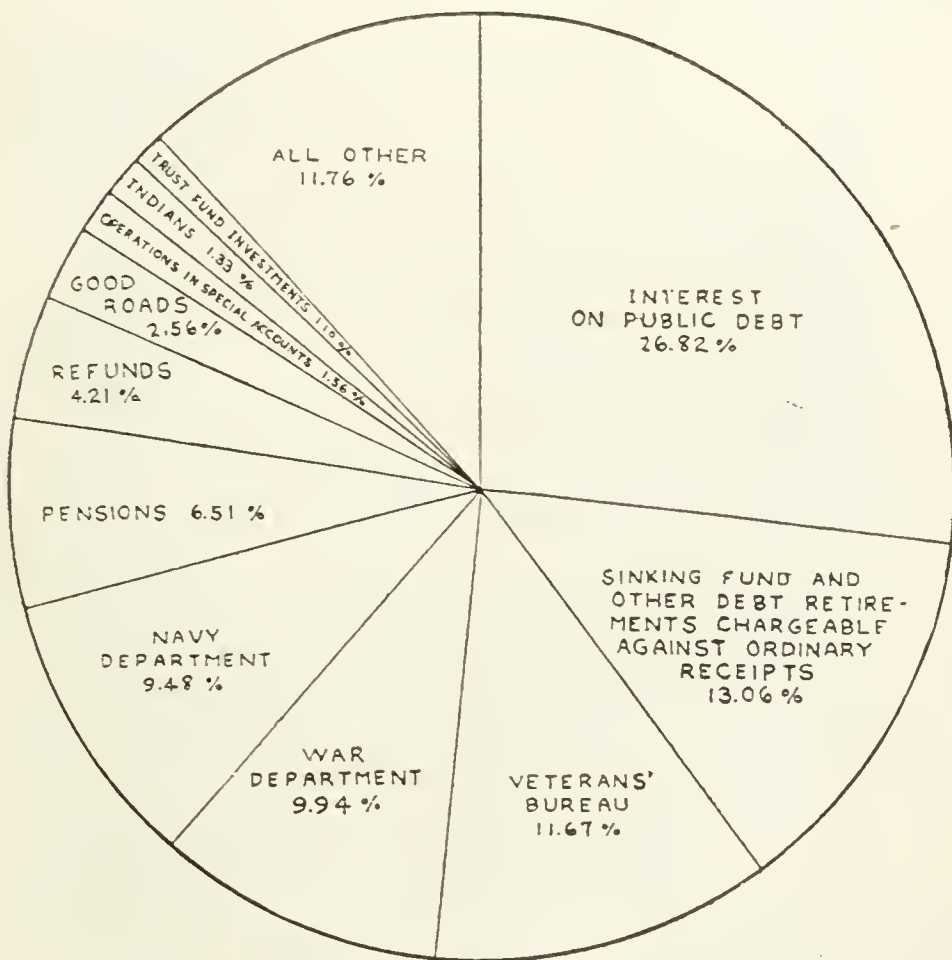
The growth of federal expenditure has been most acute during war periods. More than four-fifths of present expenditure goes for the cost of past wars and the upkeep of present military equipment. Further explanation of the increase would lie in the tendency of government to expand its functions into new fields for the promotion of social well-being, and in the necessity for more elaborate political administration in a country where congesting population makes life more complex and intricate. Moreover, the estimates of increase are given in dollars of inconstant purchasing power. The depreciation in the value of the

dollar accounts for fully one-third of the nominal increase of expenditures since 1913. The distribution of federal expenditures is shown in the accompanying diagram: ⁴

GOVERNMENT EXPENDITURES CHARGEABLE AGAINST ORDINARY RECEIPTS

Fiscal Year Ended June 30, 1924

Total = \$3,506,677,715



This diagram emphasizes the fact that the overwhelming proportion of federal outgo is on account of military protection. Interest on public debt and sinking fund requirements both arise primarily from war borrowing. Pensions, the Navy Department, the War Department, and the Veterans' Bureau are traceable directly to military causes. The civil expenditure is clearly a minor part of the total. The most important method for cutting down on federal expenses would be the elimination

⁴ Annual Report of the Secretary of the Treasury on the *State of the Finances* for the fiscal year ended June 30, 1924, p. 19.

of war. No other method could do as much as this for the desired economy. This war expenditure adds no value to present wealth. It is the most glaring exception to the otherwise productive functions of government. All programs of economy must begin with the military items in the budget.

However, when we turn from Federal to State and Local government, we find equally striking increases in expenditure. The total increase is best measured by finding what proportion total taxation bears to total national income.

Year	Percentage Which Total Taxation, National, State, and Local, was of the National Income *
1912-13	6.36
1913-14	6.41
1914-15	6.62
1915-16	6.09
1916-17	5.97
1917-18	10.53
1918-19	10.55
1919-20	13.00
1920-21	14.32
1921-22	12.16
1922-23	15.00

* National Industrial Conference Board, *Taxation and National Income*, pp. 22-24.

In the pre-war period, government claimed about one-fifteenth of the national income, whereas in the post-war period, it claimed more than one-eighth of the national income. In the latter period, more than one dollar out of every eight dollars of income went to the government.

The states spend much less per capita than do the cities. The bulk of local taxation is by the municipal and county authorities.

Year	Expenditures Per Capita of 146 Cities *	Expenditures Per Capita of 48 States †
1903	\$24.64	...
1915	34.53	\$4.99
1917	33.26	5.04
1919	35.58	6.05
1923	60.29	11.95

* *Financial Statistics of Cities.*

† *Financial Statistics of States.*

In 1921, about 12 per cent of total government expenditure was by the states, about 55 per cent by the federal government, and the balance, or about 33 per cent, by counties, towns and cities. In 1924, about 41 per cent of the total was federal, and the balance state and local.

Taxation and Productive Functions of Government 713

The per capita expenditures are greatest in the largest cities. This fact indicates that as urban life becomes increasingly complex, it entails more than proportionate increases in government outlay. This tendency for the larger cities to bear the higher per capita expenditure is shown in the accompanying table:

PER CAPITA COSTS OF GOVERNMENT FOR CITIES OF VARYING SIZE FOR THE YEAR 1921

Population	All Government Expenditures *
500,000 and over	\$55.20
300,000-500,000	54.84
100,000-300,000	42.68
50,000-100,000	40.04
30,000-50,000	39.59

* H. L. Lutz, *Public Finance*, p. 71.

Increased expenditures in cities and states are not due merely to an increase in general expenses of government. In 1919, the per capita expenses of general government for the states were only \$0.50 out of a total state expenditure of \$5.42 per capita. The per capita expenses of general government for 227 cities were only \$2.22 cents per capita out of a total city expenditure per capita of \$30.13. *The main expenditures of both states and cities are for social and industrial functions of government.* The more important of these social and industrial functions are the following:

SOCIAL AND INDUSTRIAL FUNCTIONS OF STATES AND CITIES

- Conservation of Health.
- Sanitation.
- Development of Natural Resources.
- Highways.
- Charities, Hospitals, and Correetion.
- Schools and Libraries.
- Recreation.
- Police, Fire, and other Protection to Life and Property.

The most important single item in this list is education. In 1922, approximately one-fourth of all state and city expenditure was for this purpose. The main cause for increasing loeal expenditure has been an expansion of the funetions of local governments. More and more they have taken upon themselves social duties and responsibilities. Most of these are productive for the community as a whole. They are aimed to promote the general well-being. They are a recognition of the faet that our complex urban civilization requires services from the government which were not called for while we lived in a predominantly agricultural

society. The United States has been in transition from an agricultural type of state to an industrial type, and one of the most conspicuous features of the transition is an expansion of the social responsibilities of government.

In summary, certain conclusions seem to be warranted: First, all branches of government have increased their per capita expenditures. Second, in estimating the amount of this increase in terms of money, allowance must be made for changes in the value of the dollar. Third, the main portion of federal expenditure is for the cost of past wars and present military equipment. Fourth, the main portion of state and city expenditure is for social and industrial functions of government, of which the most important is education. Fifth, the larger the cities become, the greater the government expenditure per capita. Sixth, the transition from an agricultural to an industrial state involves a marked expansion of governmental functions. Seventh, government under present conditions absorbs about one-eighth of the total national income.

Public Revenue Other than Taxation and Public Credit.—There are various sources of revenue other than taxation and borrowing. The most important of these sources are:

1. The Public Domain.
2. Public Industries.
3. Fees, Licenses, Assessments and other Administrative Charges.

The public domain includes the land, forests, and water power owned by the government. The United States has followed certain characteristic policies in disposition of the public domain. Agricultural lands have either been given to settlers, or sold at nominal sums under homestead laws. The purpose has been to encourage settlement on the land, to develop individual proprietorship and private ownership among small, independent farmers. Although defects in the laws have made possible some speculation in lands, nevertheless in general the public disposal of the farm lands has encouraged a rapid development of agriculture and a democratic distribution of farm land. The farm land so disposed of brought in a negligible revenue to the government. The land policy was designed for the benefit of the recipients of land, rather than for revenue purposes. In this respect, the government was doubtless more generous than it needed to be.

More than 150,000,000 acres of land were given to the railroads in order to encourage the rapid development of transeontinental transportation. The government was prodigal in its gifts, and although these had the effect of speeding up the construction of railroads, nevertheless its lavish policy in this direction was not altogether in the public interest. Land grant schools and colleges have received gifts of 78,889,000 acres of land. Doubtless, this form of land disposal was among the worthiest of all forms practiced by the government.

Forests cannot with advantage be trusted to unrestricted exploitation

by private initiative. Many authorities urge strongly that the government should retain full ownership of its forest lands. Operation would then be by lease to private parties under strict government supervision. Private exploitation results in a rapid denudation of the land. Reforestation and conservation are primary public necessities but these policies do not pay the private interests engaged in the lumber industry. The long period of time required to regrow a forest makes reforestation unattractive to profit-making interests. If reforestation is to be secured, it must be at the initiative of the government. Even though the forests are made private property, they should be brought under the rigid control and regulation of the government. The public interest is too great to be left to the mercy of interests animated chiefly by the motive of immediate private profit. The government should consider itself as a trustee for future generations, and should hold the lands in trust for future need.

Mineral resources are similar to forests in respect to the need for conservation. Wasteful exploitation of minerals is a wanton impoverishment of the future. Minerals once extracted can never be replaced. In this respect, the mines present a difference from forests. Reforestation can take place, but restoration of mineral deposits cannot take place. In the United States, coal, copper, and other mineral deposits have largely fallen into the hands of private capital. Certain petroleum resources on government lands have been retained under government ownership. Government ownership is not as urgent for mines as for forests, but at least government regulation to guarantee conservation is clearly necessary. No claim is made that these parts of the public domain should be treated as an important source of public revenue. There is no expectation that they can be made to yield a profit to the government. Rather, the claim is that regardless of revenue, the public domain should be so guarded as to insure its proper conservation and the maximum gain to the community as a whole.

Public industries are those owned and operated by the government. Many countries have placed all or part of their railroads under government operation. Prussia followed this plan largely for military reasons. Other countries have followed it either because private operation has broken down or because service and expansion were desired which would not be immediately profitable to private capital. The post office is the most universal of government operated industries. In many countries, other means of communication, principally telegraph and telephone, are conducted by the government. The Panama Canal is often cited as an example of government efficiency in accomplishing a much needed improvement which private capital was unable to carry through. Reclamation, irrigation, dams, waterways, harbors, and other like improvements have been common governmental projects in the United States. With the coming of the automobile, the building of highways has expanded into a major function of government. A growing number of municipal utilities are owned and operated by local governments. It has been

estimated that over seven thousand cities and towns in the United States own and operate municipal waterworks, or more than two-thirds of the total number. About 40 per cent of all electric lighting plants are state or municipally owned.⁵ State monopolies are found in many foreign countries. Switzerland monopolizes the manufacture of alcoholic beverages, and France the manufacture of matches and tobacco.

For the most part, such public industries are relatively unimportant as sources of revenue. The industries are run with a view to supplying an essential public service at cost. The intent is not to treat the public enterprise primarily as a source of government profit. Service is more important than revenue in the majority of experiments. Consequently, it is irrelevant to test the efficiency of such enterprises by the size of their net earnings. If they pay their way, keep free from political entanglements, and render efficient service, they have justified their existence. A large number of municipal enterprises have measured up to this test fairly well. In the national field, the post office has demonstrated a fair degree of success. In the United States, public opinion is bitterly opposed to extension of government ownership over railroads, coal mines, and like industries. The business slogan is, "Less government in business, and more business in government." It is next to impossible to give public ownership an impartial and scientific test under prevailing conditions of propaganda and prejudice both for and against the program.

A third source of revenue is administrative fees and special assessments. Fines, licenses, and fees are intended usually to defray specific expenses of government. Special assessments have been mainly used as a means of paying for local street improvements. Fines generally are not an important source of revenue. License fees are more important, and in the United States have been applied most fruitfully to liquors and to automobiles. Licenses for druggists, doctors, amusement places, and other purposes are frequently employed. The license in many forms takes on the character of a tax, and it will therefore be discussed further in later sections dealing with taxation. Special assessments have been a most important factor in enabling cities to develop needed improvements.

Tests of Justice in Taxation.—Adam Smith laid down four famous *canons of taxation* as follows:

1. The subjects of every state ought to contribute toward the support of the government, as nearly as possible in proportion to their respective *abilities*; that is, in proportion to the revenue which they respectively enjoy under the protection of the state.
2. The tax which each individual is bound to pay, ought to be *certain and not arbitrary*. The time of payment, the manner of payment, the quantity to be paid, ought all to be clear and plain to the contributor, and to every other person.
3. Every tax ought to be levied at the time, or in the manner, in which it is most likely to be *convenient* for the contributor to pay it.

⁵ See C. D. Thompson, *Public Ownership*, pp. 204, 269.

4. Every tax ought to be so contrived as both to take out and to keep out of the pockets of the people *as little as possible over and above what it brings into the public treasury of the state.*⁶

Of these four canons of *ability, certainty, convenience, and economy*, the first has occupied the center of attention in discussion of modern taxation. Although almost everyone would concede in the abstract the soundness of the principle of ability to pay, nevertheless such a concession would not mean much. As soon as people consider a concrete form of tax, dispute immediately begins as to whether it is an expression of the ability to pay principle. In application, the notion of ability to pay leads to endless contention. Adam Smith assumed that the test of ability was the size of a person's income. This assumption would require a *proportional* tax on income. But the modern tendency has been to impose a *progressive* tax on income. The higher incomes are taxed not merely in proportion to their size, but more than in proportion. The clearest illustrations are graduated income and inheritance taxes. The progressive rates are defended on the ground that they are the only means of taxing on the basis of ability to pay. Much debate has centered around the question whether ability to pay requires the proportional or the progressive rate. And the net outcome of the discussion has been to apply the proportional principle to general property and to numerous other subjects of taxation, and to apply the progressive principle to incomes and inheritances. Obviously ability is a loose term capable of being construed to mean anything which the construer desires.

A distinction with regard to ability to pay has also been made on account of the different sources of income. Income for effort has been distinguished from income for ownership, and the assumption has been made that a dollar of the latter type of income should be taxed more heavily than a dollar of the former. Income for effort has been designated as *earned* income, while income for owning, perhaps with some invidiousness, has been designated as *unearned* income. Higher rates on unearned than on earned income are declared to be in keeping with the principle of ability to pay.

Finally, a distinction is made between marginal income and surplus income. The economist has long emphasized that a certain modicum of income is just enough to induce the recipient to render his services in production. Income beyond that is more than enough to induce these services. This surplus income is pure bonus to the recipient. He would have given his services for less, but did not have to. The economist calls such surpluses a form of "rent." The excess profits tax or the tax on rent of land illustrates the effort to tax surplus income more heavily than marginal income. The assumption is that the principle of ability to pay is applied by taxing surplus income more heavily than marginal income.

Obviously, ability to pay is a phrase which can be made to mean all

⁶ *Wealth of Nations*, Book V, Chapter II.

things to all people. It is easy to agree on the abstract principle of ability. But it is not so easy to answer the question, What is ability? The foregoing discussion suggests some of the special applications which are being made of the concept of ability to pay under contemporary conditions.

Some authorities have maintained that the ability principle means in practice *equality of sacrifice*. Logically carried out, equality of sacrifice could mean only one thing, an equal or communistic distribution of all wealth and income. As long as one man has more income than another, there is no equality of sacrifice in any genuine sense of the word. Sacrifice is a purely psychological or subjective notion. It is not measurable. The word sacrifice is just as abstract and loose as the word ability. Neither gives a definite and tangible rule to apply to concrete forms of taxation.

Seligman has attempted to substitute the word *faculty* for ability. The faculty principle holds that each individual should help the state in proportion to his ability to help himself. The determination of faculty is no easier, however, than the determination of ability. Both phrases come to the same thing. As general concepts of justice, they are doubtless useful, but as specific guides to policy they are indefinite and inadequate.

Another test often advocated is taxation according to *benefit* received. A closely similar test is taxation according to the *cost* to the state of the services rendered to each individual. In general, the benefit principle is inapplicable to modern conditions. Many people who receive the greatest benefits from the state are in such a financial position that they can contribute nothing at all to the revenues of the state. State charitable institutions are supported by those who receive no direct benefit whatsoever. In the public schools, the children of the poor receive just as much benefit as the children of the rich, but they are not in a position to pay anything like the same amount of tax. The benefit theory breaks down when applied to the mass of modern taxes. Occasionally, however, a form of tax appears which embodies the principle. An illustration would be the modern gasoline tax. Here the assumption is that the user of gasoline benefits from good roads, and should pay in proportion to the amount of the benefit.

For reasons of expediency, a new test has been adopted, which can best be described as *charging all that the traffic will bear*. The test is borrowed from railroad parlance. Freight rates are different for lumber and for fine furniture, for building stone and for clothing. Each article is assessed a freight rate which will not discourage shipment, but which will collect the maximum amount of income short of prohibiting shipment. It has been found that high taxes on personal property and on intangibles result in evasion of the tax. Accordingly, some states have lowered the rates on these items to a point where there will not be a strong inducement to evade the payment. Such objects are then taxed on the basis of what the traffic will bear. This principle is in line with

the old cameralistic doctrine that justice is not so important a criterion as effectiveness in raising the maximum revenue. It rests not upon ability to pay so much as upon the ability of the state to collect. Ability to get the revenue is looked upon as more imperative than abstract ability to pay. Practicality and expediency are strongly on the side of the cameralistic doctrine.

The General Property Tax.—In strict definition, according to Seligman, "A tax is a compulsory contribution from the person to the government to defray the expenses incurred in the common interest of all, without reference to special benefits conferred." Two main characteristics of a tax are emphasized in this definition. First, it is compulsory. Unlike a private payment for a commodity in the market, where the individual chooses voluntarily whether he will pay the price, the payment to the government is imposed by the government and compulsorily collected. Second, no special benefit is given in exchange for the tax. There is no tangible *quid pro quo*. If an individual buys an article of food or clothing, he can see it, measure it, handle it. But when he pays a tax to the government, he has no particular article in hand, no tangible and labelled service or commodity which he is paying for. The benefits are general, and need not be in proportion to the tax.

The provision of the federal constitution that "No capitation, or other direct tax, shall be laid, unless in proportion to the census" has had the effect of forbidding the use of the general property tax as a means of revenue to the federal government. This form of tax is used exclusively by the state and local governments. The tax falls upon real property, that is, real estate, upon personal property, and upon intangible property. The main reliance has been real property. All forms of general property taken together supply from one-half to two-thirds of the revenue raised by state and local governments.

The general property tax is the product of economic evolution. In early agricultural societies, the most important form of property is the land. The obvious source of taxation under these conditions is landed property. Property is assumed to be commensurate roughly with the owner's ability to pay. The property tax in the United States dates from colonial times, although it has undergone many subsequent modifications. As personal property and intangible property take on new importance, and as corporate industry develops, the general property tax becomes more and more complicated. Seligman summarizes the matter as follows:

History everywhere teaches the same lesson. As soon as the idea of direct taxation has forced itself into recognition, it assumes the practical shape of the land tax. This soon develops into the general property tax which long remains the index of ability to pay. But as soon as the mass of property splits up, the property tax becomes an anachronism. The various kinds of personality escape, until finally the general property tax completes the cycle of its development and reverts to its original form of the real property tax. The property tax of the United States is simply one instance of this universal tendency. It is not an American invention, but a relic of mediævalism. The general property tax is

impossible in any complicated social organism. Medieval methods cannot succeed amid modern facts.⁷

The defects of the general property tax are so serious that economic authorities condemn the tax with virtual unanimity. These defects may be briefly outlined as follows:

1. Some classes of property largely escape taxation whereas others bear the brunt of the burden. Personalty and intangibles particularly escape taxation, whereas real property is likely to be over-taxed. The records of assessment in various states show that assessment of furniture, wearing apparel, jewelry, tools, implements, etc., is grossly unequal and inadequate. Much of this personal property escapes altogether, and the rest is likely to be excessively undervalued. Intangibles such as money, notes, mortgages, stocks, bonds, and the like, manage to escape the tax burden to an amazing degree. A competitive struggle to undervalue such property or to sequester it altogether goes on in modern society. Real property bears an undue burden, whereas personal and intangible property avoid a due burden. Inasmuch as intangible property has come to have primary importance under the corporate régime of business, this defect in the general property tax is a grave one.

2. Inequality of assessment as between different sections becomes a serious evil. Local assessors seem to feel that as a matter of loyalty to their community they must pare the assessed valuation of property down as low as possible. To equalize assessments, various state boards and commissions have been established, but their work has fallen far short of the desired equalization. The proportion of assessed value to true value or fair value is not the same in any two states, and often varies in different sections within any one state. The ratios for the different states are shown by the census tabulation on page 721.

Moreover, inequalities of assessment appear as between various forms of real property. In 1907, a study in Wisconsin showed that farm property was assessed at 59.2 per cent of true value, whereas property of manufacturers was assessed at only 21.84 per cent of true value. In Virginia, the discrepancy was the other way, and worked to the disadvantage of city property. In Indiana, a study made in 1916 showed that small parcels of land were assessed nearly twice as heavily in proportion to true value as large parcels. In Ohio, it has been found that some parcels were assessed at 11.3 per cent of market value whereas others were assessed at 120.7 per cent. In certain states, it has been found that some counties were assessed at only 10 to 20 per cent of true value whereas other counties were assessed at 100 per cent or more of true value.

3. Duplication of taxation becomes inevitable. Bonds, stocks, mortgages, may be taxed, and then the real property which they represent may also be taxed. Both intangibles and the tangibles behind them bear a load, and injustice is the inevitable result.

⁷ *Essays in Taxation*, p. 53.

Taxation and Productive Functions of Government 721

4. The assumption that general property is a measure of ability to pay underlies the belief in the property tax. This assumption may have been roughly true in an earlier agricultural community, but it is not true of complex property rights in modern society. The extension of intangible forms of property has undermined the crude assumption that property is an index of ability to pay.

PER CENT OF ESTIMATED TRUE VALUE OF REAL PROPERTY AND IMPROVEMENTS
REPRESENTED BY ASSESSED VALUATIONS *

State	1922	1912	1904	1900	State	1922	1912	1904	1900
Alabama	47.7	40.0	45.9	46.7	Nebraska	70.1	15.0	17.7	13.7
Arizona	81.0	50.0	33.5	34.6	Nevada	50.0	30.0	37.7	36.5
Arkansas	22.6	28.0	38.7	39.4	New Hampshire ..	79.5	100.0	65.4	65.4
California	46.6	45.1	49.2	51.1	New Jersey	63.2	54.1	54.1	54.1
Colorado	73.6	25.0	40.4	30.8	New Mexico	43.0	25.7	25.7	35.4
Connecticut	63.2	66.7	80.7	80.2	New York	84.8	66.7	90.1	64.6
Delaware	77.5	56.7	56.7	56.6	North Carolina ..	75.7	60.0	60.0	54.2
District of Columbia	90.8	66.7	66.7	66.7	North Dakota	76.0	17.2	30.6	30.5
Florida	20.0	35.5	35.5	35.7	Ohio	70.2	90.0	46.4	47.6
Georgia	37.9	52.5	52.5	54.0	Oklahoma	62.3	50.0†	25.1	24.5
Idaho	50.0	85.0	41.8	20.1	Oregon	43.5	63.5	30.1	29.8
Illinois	24.1	18.0	14.7	24.4	Pennsylvania	57.8	58.6	58.6	57.5
Indiana	80.2	45.0	60.3	62.1	Rhode Island	80.0	75.2	75.2	75.3
Iowa	12.7	11.7	19.8	41.7	South Carolina ..	20.3	33.3	46.5	47.1
Kansas	65.7	72.4	22.9	14.1	South Dakota	82.6	46.2	46.2	45.8
Kentucky	71.0	62.2	62.2	62.8	Tennessee	57.8	60.0	61.1	61.8
Louisiana	68.9	40.0	53.3	53.8	Texas	40.2	50.0	48.5	49.3
Maine	52.0	73.8	73.8	73.6	Utah	61.4	33.3	42.8	44.0
Maryland	64.0	65.8	65.8	65.5	Vermont	55.0	70.0	71.8	71.7
Massachusetts	77.5	90.6	90.6	90.4	Virginia	40.7	50.8	55.3	58.1
Michigan	85.2	58.7	62.7	62.7	Washington	28.0	42.3	71.0	47.7
Minnesota	34.7	37.1	37.7	36.6	West Virginia ...	40.0	49.7	49.7	51.2
Mississippi	44.5	54.8	54.8	54.2	Wisconsin	85.3	75.0	31.4	36.9
Missouri	59.1	40.0	40.5	42.0	Wyoming	72.4	100.0	46.0	30.2
Montana	28.7	43.5	43.5	45.7					

* Bureau of the Census, *Wealth, Debt and Taxation, 1922, Estimated National Wealth*, p. 5.

† Revised basis; in the report for 1912 the basis used was 25 per cent.

European countries, except Switzerland, have abandoned the general property tax. In the United States, numerous methods of reforming or abandoning the tax have been attempted. One method was to require the *listing* of all forms of property on the public records, but the owners forgot or neglected to declare their property, and brought the device to naught. Another method was to appoint special agents as tax *ferrets*, or inquisitors, but these proved unsuccessful after a short trial. A third method was to pass state laws arbitrarily setting *tax limits*, but since expenditures still increased, governments had to increase their public

debts, and the futility of the tax limits became apparent. A fourth method was to *centralize the assessment* of property with a view to equalization, but inequalities still persisted. A fifth method was the *separation of sources*, whereby the states left the taxation of property to the local authorities, and attempted to derive their own revenues from new sources, such as corporation taxes. A sixth method was the *classified* property tax, whereby rates on personalty and intangibles were cut down to "what the traffic would bear." Both the separation of sources and the classification of property accomplished a certain amount of reform, but they did not eradicate many of the basic defects of the general property tax. The final method is the substitution of the tax on *income and earnings* for the general property tax. Both individual incomes and corporation incomes have been subjected to the newer taxation. The forms of such taxation must be adapted to the peculiar traditions and conditions in each state, but the principle commends itself strongly as a basic program of taxation reform. Where the new method is relied upon, its efficacy depends upon the efficiency of the administrative mechanisms entrusted with the collection of the tax. By one or more of the above methods, the scope of the general property tax has been narrowed among the states. It still prevails among local units of taxation, and is the chief source of revenue in cities and counties. The wane of the property tax is chiefly apparent in revenue policies of the state governments.

Corporation and Business Taxes.—A marked tendency in recent years has been in the direction of so-called corporation and business taxes. In general, the underlying principle of these taxes is that revenue should be derived not from things but from transactions. The right to operate and carry on business should be paid for. Taxes should be aimed at exacting a remuneration for the privilege and opportunity of engaging in business. The following analysis, although incomplete, serves to delineate the main features of corporation taxes.

1. The New York State tax of 1923 provided a *tax on incorporation* of one-twentieth of one per cent of the authorized capital. Such a tax is scarcely more than a licensing fee for the right to organize a new corporate enterprise. It does not provide any material amount of revenue.

2. A general franchise tax on *capital stock* has come into prominence. In New York, banks and investment companies pay a tax on capital, surplus, and undivided profits; and railroads, telegraph, and telephone companies pay a general franchise tax on capital stock. The federal law requires that every domestic corporation shall pay annually a special excise tax assessed with reference to its "carrying on or doing business," and that the rate shall be \$1 for each \$1,000 of so much of the fair average value of its capital stock as is in excess of \$5,000. The calculation of fair value of capital stock must include surplus and undivided profits, and must take into account franchises, good will, outstanding contracts, earning capacity, market value of shares of stock,

and value as a going concern. Massachusetts has applied a corporation tax to all domestic corporations except banks, trust companies, and insurance companies. The total value of all the stock of the corporation is estimated and then a deduction is made for real estate and machinery already taxed locally and for certain other exemptions. The "taxable corporate excess" is the basis for the imposition of the tax. The tax is designed to reach all of the value in corporate property, whether tangible or intangible, in such manner as to tax it once and once only. The state refrains from any further levy upon the individual holders of the corporate shares. Part of the proceeds are apportioned to the towns in proportion to shares held therein.

3. A *gross receipts tax* on premiums of insurance companies, on intra-state earnings of steam railroads, telegraph and telephone companies, and of water works, gas, and electric companies is imposed under the New York law. Insurance companies are a common subject of gross receipts taxes, the rates usually being from 1 to 3 per cent of premiums. Railroads and other public utilities are also widely taxed on the gross earnings basis. Many of these companies do an interstate business, and merely local taxation is futile. State assessment is made according to the unit rule, under which the total interstate gross earnings of the company are ascertained, and such fractions thereof as are derived from within the particular state are singled out for taxation there. In the case of railroads, the most convenient method of apportionment appears to have been the division of receipts in proportion to the railroad mileage found within the state. The principle of *classification* has in some states been applied to the gross receipts tax. Thus Minnesota applies different tax rates to steam railroads, express companies, and telephone companies. Maine classifies the tax rate according to the gross receipts per mile of railroad. The gross earnings tax has not generally been considered as suitable to all corporations but its special applicability to insurance companies, railroads, and utilities has been recognized. It is often objected that gross earnings are not nearly so reliable a measure of ability to pay as net earnings. This objection is doubtless well founded, but the gross receipts basis offers the advantage of simplicity and certainty in calculation. This advantage in large measure offsets the objection of not measuring ability to pay. The alternative to gross receipts in taxing these special classes of corporations might be an *ad valorem* basis. The valuation of such properties, however, presents great difficulties, and throws taxation back into many of the difficulties of the general property tax. All things considered, the gross receipts tax has many advantages where both net income and property value are difficult to calculate with accuracy.

4. A *franchise tax on net income* of mercantile and manufacturing corporations amounting to $4\frac{1}{2}$ per cent was prescribed by the law of 1923 in New York. In 1925, twelve states imposed corporation income taxes of one kind or another, and in addition, the federal government included a similar tax in its scheme of revenues. Where uniform ac-

counting systems are maintained, calculation of net income is comparatively easy. Experience in the administration of federal income taxes has introduced certain standard notions of net income, with the result that net income for manufacturing and mercantile corporations can be computed with a fair degree of accuracy. In some states, the rates are progressive, and in others proportional. The Federal Act of 1924 imposes a rate of $12\frac{1}{2}$ per cent on corporate net income. Thus, the rate is made proportional rather than progressive. The tax on net income, where such income can be accurately computed, represents an attempt to adapt taxation to the ability of the corporation to pay. It also represents an attempt to apply the benefit principle to corporate taxation.

5. *Privilege and occupation taxes* are presumed to rest upon the opportunity granted by the state to engage in business. According to a West Virginia law of 1921, all firms in that state engaged in the extraction of natural resources must pay for that right a tax of two-fifths of one per cent of gross proceeds. Other lines of business are also taxed at varying classified rates for the right to engage in business. Arkansas and Louisiana impose a privilege tax on the material "severed" from the soil. Minnesota imposes an "occupation" tax on the value of all ores mined. Such taxes, whether under the term privilege, severance, or occupation, closely resemble both a sales tax and a gross profits or gross receipts tax. They are, however, levied under the guise of a general franchise tax on corporations, and require consideration under that heading. Taxes which are more avowedly of the nature of sales or commodity taxes are considered in the following chapter.

6. The word "franchise" is used so loosely and comprehensively that it would include any of the foregoing corporation taxes. New York, however, imposes a particular form of franchise tax, designated as the *special franchise tax*. The use of city streets, rights of way, and public property, is assumed to be of value to the corporations, and this value is treated as a special franchise. Such special franchises are designated as real estate, and the courts have upheld the legality of this classification. Consequently, franchise values are taxable at the same rates as any other real property. In New York City alone, such franchise values amounted to more than \$400,000,000 in 1921.

In their many forms, corporation and business taxes represent the widespread endeavor of the government to find sources of revenue which can either supplement or supplant the general property tax. Such taxes have not taken their final form. They are still in the trial-and-error or experimental stage. But underneath their tentative nature, they reveal a fundamental reform movement. They are one of the most important tendencies in present-day public finance.

CHAPTER XXXV

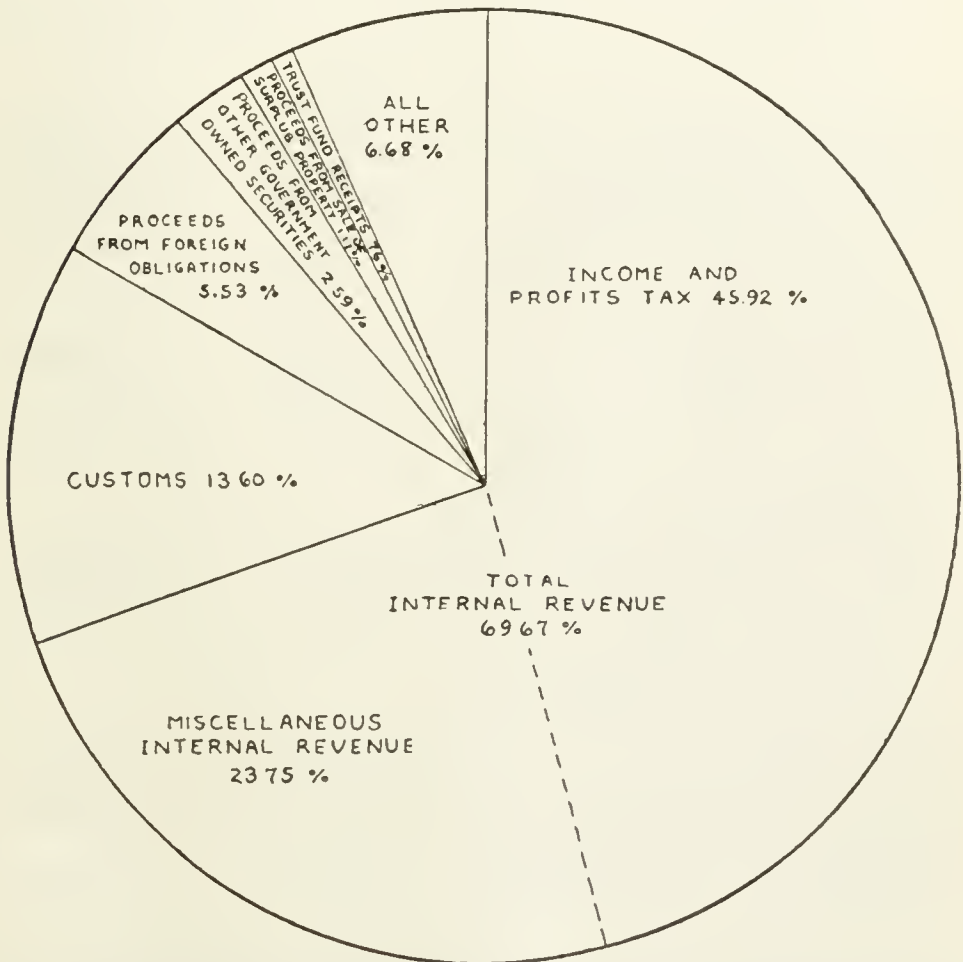
TAXATION AND THE PRODUCTIVE FUNCTIONS OF GOVERNMENT (*Continued*)

The Sources of Federal Revenue.—The relative importance of the different sources of Federal revenue is shown in the accompanying diagram:¹

ORDINARY RECEIPTS OF THE GOVERNMENT

Fiscal Year Ended June 30, 1924

Total = \$4,012,044,701



¹ Annual Report of the Secretary of the Treasury, *The State of the Finances*, for fiscal year ended June 30, 1924, p. 18.

Federal taxes may be classified chiefly under the following headings:

1. Internal excise and consumption taxes.
2. Customs' duties, or tariffs.
3. Income taxes.
4. Profits taxes.
5. Gift, estate, and inheritance taxes.

Most of these sources of revenue are utilized by state governments as well as by the federal. They are not, with the exception of the tariff, the exclusive field of any one unit of government. The import tariff is the exclusive field of revenue for the national government.

Internal Excise and Consumption Taxes.—Internal excise taxes are taxes on commodities for consumption, on certain financial and legal documents, and on certain domestic activities and transactions.² The scope of these revenues may be illustrated by the following summary of federal internal excise duties collected during the fiscal years ending June 30, 1923 and 1924.

THE CHIEF FORMS OF INTERNAL EXCISE TAXES OF THE FEDERAL GOVERNMENT *

	1923	1924
Distilled spirits and alcoholic beverages	\$30,358,085.63	\$27,585,708.37
Receipts under national prohibition	729,244.23	855,395.37
Tobacco and tobacco manufactures	309,015,492.98	325,638,931.14
Oleomargarine, adulterated, and process or renovated butter and mixed flour .	2,307,310.84	2,863,463.98
Bonds, capital stock issues, conveyances, capital stock transfers, sales of prod- uce for future deliveries, etc.	64,875,378.81	62,257,553.96
Telegraph and telephone	30,380,783.93	34,662,428.90
Excise taxes, manufacturers', including automobiles, cameras, photographic films, candy, yachts, etc. (sec. 900) . .	162,527,580.57	175,900,047.91
Other excise taxes, including sculpture and paintings; carpets, rugs, trunks, and valises; jewelry, clocks, and watches; nonalcoholic beverages, etc.	32,668,594.81	35,391,179.90
Corporations, on capital stock	81,567,739.32	87,471,691.52
Brokers, theaters, museums, bowling alleys, billiard and pool tables, shoot- ing galleries, riding academies, pas- senger automobiles for hire, and use of pleasure boats, etc.	8,035,583.49	7,814,413.92
Admissions to places of amusement and entertainment and club dues	77,345,877.72	85,722,385.09
Narcotics: Opium, coca leaves, etc., in- cluding special taxes of importers, manufacturers, and dealers	1,013,736.26	1,057,341.33

* Annual Report of the Secretary of the Treasury, *State of the Finances*, 1924, p. 288.

² The meaning of excise has been broadened in recent years to include the inheritance tax, the federal corporation tax of 1909, and the capital stock tax. These

The most productive forms of internal excise duties have been the tobacco and liquor taxes. The constitutional prohibition of liquors has destroyed the former importance of liquor taxes, but the tobacco taxes retain their position as a primary source of revenue. Some countries have derived large revenues from a tax on salt, but the United States has not seen fit to imitate the policy. An important form of taxation in the United States is the *stamp* tax, which applies to bonds, capital stock issues, conveyances of title, promissory notes, custom house entries, passage tickets, proxies, powers of attorney, and other financial instruments. Another form is the *amusement* tax, which applies to theaters, moving picture houses, circuses, bowling alleys, pool tables, shooting galleries, riding academies, pleasure boats, and club dues. A further form is a *manufacturer's excise*, which applies to automobiles, cameras, photographic films, candy, yachts, oleomargarine, and the like. Finally, the *sales tax* is important, and at present applies to telephone and telegraph messages, beverages, admissions, dues, and works of art and jewelry. Strictly speaking, the sales tax would include also the manufacturer's excise tax.

Consumption taxes have been a favorite resort of governments in time of war. In the World War, the United States imposed heavy rates on transportation, communication, insurance policies, soft drinks, and other objects. After the war, most of these abnormal levies were either abolished or greatly moderated. The taxes on soda fountain supplies and soft drinks received the epithet, "nuisance taxes." They were extremely difficult to collect, and were abolished in 1921.

Although the states have not used excise taxes to the same extent as the federal government, nevertheless they have made some progress in that direction. Particularly, they have found a sales tax on gasoline ideally suited to the raising of revenue for the maintenance and construction of highways. In 1923, thirty-seven states had adopted the gasoline excise tax.

When the proposal for a federal cash bonus was under consideration, numerous authorities advocated a general sales tax as the proper method of collecting the money. A general sales tax did not, however, appeal favorably to public opinion. This was because such a tax violates the principle of ability to pay, and in effect constitutes a *regressive* tax. Regressive is the opposite of progressive. It means that the greater the ability to pay, the less one is taxed. The people of high incomes would enjoy a tax which is graduated downward instead of upward. The poor man and the rich man, buying the same article and paying the same tax, are not paying in proportion to any reasonable conception of ability. And above all, a notion of equality of sacrifice is flagrantly violated. Owing to this regressive consequence, a sales tax should be applied but lightly to necessities of life. It should be confined mainly

newer forms of excise can scarcely be included under the head of consumption taxes. Most other excise taxes do, however, involve a levy on consumption, and consequently it is appropriate to group excise and consumption taxes together in this discussion.

to luxuries, or to articles whose consumption it is intended to discourage. The taxes on tobacco, liquors, and amusements affect articles of luxury. The tax on narcotics affects articles whose consumption is to be discouraged. When levied in accord with these considerations, the internal excise taxes rest upon sound fiscal principles, and are important sources of revenue. Their diversity in recent years has increased their significance as a major form of taxation.

Customs Duties, or the Import Tariff.—The tariff on imports yielded in 1924 only 13.6 per cent of the total federal revenue. Although now a minor source of revenue, the tariff was in the earlier history of the country the chief source. It is now superseded in importance by income, corporation, and excise taxes. The total duties collected in recent years have been as follows:

IMPORT DUTIES COLLECTED BY THE UNITED STATES

Year	Amount	Year	Amount
1918	\$180,589,834	1921	\$292,396,752
1919	237,456,680	1922	451,356,289
1920	325,645,565	1923	566,663,978
		1924	545,012,115

The average ad valorem rates of duty on dutiable imports in 1923 were as follows for various classes of articles:

Article or Schedule	Average Ad Valorem Rates on Dutiable Imports Per Cent
Schedule A, Chemicals, oils and paints	29.95
Schedule B, Earths, earthenware and glassware	39.09
Schedule C, Metals and manufactures of	33.89
Schedule D, Wood and manufactures of	21.95
Schedule E, Sugar, molasses and manufactures of	36.19
Schedule F, Tobacco and manufactures of	55.22
Schedule G, Agricultural products and provisions	25.98
Schedule H, Spirits, wines and other beverages	44.67
Schedule I, Cotton manufactures	32.18
Schedule J, Flax, hemp, jute, etc.	20.34
Schedule K, Wool and manufactures of	56.45
Schedule L, Silk and silk goods	53.18
Schedule M, Pulp, paper, and books	24.29
Schedule N, Sundries	38.29
All classes	36.17

The purpose of the tariff in the United States has become chiefly the protection of domestic industry. The raising of revenue is incidental. Hence, the main test of the efficacy of the tariff is non-fiscal. In so far, however, as it serves a revenue purpose, it must be judged by the require-

ments of a sound tax. Two defects characterize the tariff in this country when considered from the fiscal standpoint. One defect is its inelasticity. The proceeds of the tariff are likely to fall off just at the time when the government is most in need of revenue. This defect was acutely felt during the World War, for the falling off in imports reduced the customs receipts to a minimum. The government had to rely almost wholly upon other sources of revenue. This defect of the tariff has been clearly stated by R. F. Hoxie:

Throughout the history of the customs revenue system in the United States, the income from this source has been determined, not by the government need, but, almost wholly, by the character of temporary industrial, and more especially temporary commercial conditions. As a consequence, in war the current public income has proved utterly insufficient, unstable, and inflexible; in peace it has shown itself extremely uncertain, fluctuating with every crisis and even with the changes in the policy and condition of foreign nations; in times of prosperity it has forced upon the treasury embarrassing surpluses, leading to extravagant expenditure, speculation and crisis; in adversity it has left the treasury empty, necessitating the lavish use of the public credit.³

A second defect has been lack of simplicity. The Fordney-McCumber tariff contains duties for approximately 1,500 different articles. A force of 8,204 employees is necessary to administer the act. Upwards of two hundred pages are necessary to write the act, and several hundred additional pages are necessary for constructions of the act and for regulations for customs officers. England's pre-war tariff, mainly for revenue, which concentrated on ten leading articles, was simplicity itself in comparison with the intricacies and complexities of the American schedules. Classifications recommended by the Tariff Commission have been incorporated in the present Act, but they still leave the law an enormously complex affair.

Both on the grounds of elasticity and simplicity, the modern protective tariff falls short of a satisfactory form of revenue. Its main justification must be found in its effect upon protected industries.⁴

Income Taxes.—Income taxes are applicable both to individual incomes and to corporation incomes. Taxation of corporation incomes has already been discussed, and hence only taxation of personal incomes need be considered here. The first federal income tax was passed as an emergency measure during the Civil War. Owing to faulty administration, this tax was repealed after the war. In 1894, an income tax was revived, but was soon declared unconstitutional by the Supreme Court. Article I, Section 9, of the constitution states:

No capitation, or other direct, tax shall be laid, unless in proportion to the census or enumeration hereinbefore directed to be taken.

³ See C. J. Bullock, *Selected Readings in Public Finance*, 3rd edition, p. 774.

⁴ This phase of the tariff has been discussed in detail earlier, in sections dealing with international trade.

The Civil War tax had been construed as an indirect tax, but the 1894 tax was construed as a direct tax. It therefore violated the constitution. In 1913, the constitution was amended as follows:

The Congress shall have power to lay and collect taxes on incomes, from whatever source derived, without apportionment among the several states, and without regard to any census or enumeration.

Congress promptly passed a revenue act employing the income principle, and the income tax in one form and another has remained on the statute books ever since. The rates became extremely high during the World War and the years immediately following, but were re-adjusted to a more permanent basis in 1924. The following analysis refers mainly to the 1924 law.

Numerous state governments have also adopted the income tax principle. The turning point in state adoption came in 1911. Prior to that year, all state experiments in income taxation had met with failure, due to incompetent methods of administration. In 1911, Wisconsin provided an adequate form of centralized state administration and soon demonstrated that a state income tax law could be made a success. Massachusetts, New York, and other states have taken up the principle. In 1925, fourteen states had personal income tax laws, and twelve states had corporation income tax laws.

Economics has neglected an adequate study of the meaning of income.⁵ Income tax authorities have had to develop a definition of income, suited to the specific purpose in hand. The result is a statutory conception of taxable net income.

The beginning of this conception is gross income. After gross income has been computed, net income is a next logical step in calculation. The term "gross income" includes gains, profits, and income derived from salaries, wages, or compensation for personal service of whatever kind and in whatever form paid. But gross income does not include all that comes in. Certain receipts are definitely excluded from gross income. Such exclusions would be proceeds of life insurance policies paid upon the death of the insured, dividends on life insurance premiums, the value of property acquired by gift, bequest, devise, or descent, interest upon federal and state obligations, amounts received through accident, health, or workmen's compensation insurance, alimony, and sums received for personal damages, such as libel, slander, or breach of promise.

Net income means gross income less deductions, exemptions, or "credits." Single persons have an exemption of \$1,500 and married persons an exemption of \$3,500, together with an exemption of \$400 for each dependent person. Other exemptions include bad debts, charitable contributions and gifts, interest on indebtedness, dividends from corporations (exempt from normal tax but not from surtax), salaries of state officers and employees, and other items. The final calculation leaves

⁵ See C. C. Plehn, "Income as Recurrent, Consumable Receipts," *American Economic Review*, Volume XIV, March, 1924, p. 1 ff.

the taxable net income, or statutory net income. According to the regulations issued by the Treasury Department, statutory net income is substantially identical with accounting net income.⁶

The rate structure rests upon a distinction between normal taxes and surtaxes. The normal tax under the 1924 law is 2 per cent on the first \$4,000 of net income, 4 per cent on the next \$4,000, and 6 per cent on all above \$8,000.⁷ The surtaxes apply only to net incomes in excess of \$10,000. The rates begin at 1 per cent and rise to 40 per cent on net incomes in excess of \$500,000. The surtaxes are in addition and not in lieu of the normal taxes, so that a net income of \$12,000, for instance, would pay a normal tax on the full amount plus a surtax on the amount in excess of \$10,000. In 1918, the normal tax was 12 per cent and the surtaxes ran as high as 65 per cent for the largest incomes. These rates were excessive, and were only justified, if they were justified at all, on the ground that war emergency required extreme measures.

The argument has been strongly urged that high surtax rates are destructive of capital. They are said to take away capital from the well-to-do, which would otherwise be used for productive enterprise. Also, they are said to drive capital into tax-exempt bonds of states, municipalities, and other local units of government, and to encourage wasteful and extravagant expenditures on their part, particularly in the cities. Difficulty comes in agreeing at what precise point surtax rates should fall, without destroying private capital and discouraging initiative. The 1924 act reduced surtax rates mildly, but not enough to satisfy many groups. The final determination of rates will doubtless remain the center of further political controversy and experimentation.

Even though surtaxes be reduced, few people would advocate that the principle of progression be abolished altogether. At first, progression was bitterly fought, but now it is pretty generally conceded that progression is necessary if income taxation is to square with the canon of ability to pay, or equality of sacrifice. This accepted principle does not apply with equal force to corporation income taxation. There, the proportional method is often adhered to and was adopted in the 1924 legislation.

The income tax presents serious problems of *duplication*, or *multiple* taxation. Many of the states tax non-residents, who are also subject to income tax in their states of domicile. Their incomes, in addition to being subject to tax in two states, are also subject to the income tax of the federal government. The federal government, moreover, faces the problem of taxing alien residents and resident citizens who derive income from foreign countries. The international duplication has been in part remedied by applying the *principle of reciprocity*. For instance, alien residents of the United States may deduct from taxes payable to this country the amount of similar taxes paid to a foreign country, if the

⁶ See above, p. 203, footnote.

⁷ Non-citizens and non-residents must pay a straight 6 per cent normal tax on all net income.

foreign country of which such alien residents are citizens, in imposing such taxes, allows a similar credit to citizens of the United States residing in such country. In spite of such reciprocal treatment, however, international comity in taxation still presents many problems. The problem of inter-state duplication would be greatly simplified by adoption of *the principle of taxing only residents of the state*. Many states are unwilling to make this concession, however, because they believe that well-to-do outside investors in property of the state drain income out of the state without returning anything to the state.

A distinction is now drawn between *earned and unearned income*. The British were first to adopt the principle that earned income, derived from wages, salaries, etc., should be taxed less heavily than unearned incomes, derived from ownership of property. For purposes of tax administration some rather arbitrary methods of measuring the two kinds of income were introduced into the 1924 law in the United States. If the taxpayer's net income is not more than \$5,000, his entire net income shall be considered earned, regardless of where it comes from. But not more than \$10,000 can be counted as earned income, even if income above that is solely in the form of personal salary. A deduction of 25 per cent of the normal tax is allowed on the earned income. Although we may well agree with the principle that certain forms of earned income should be taxed less than unearned income, nevertheless we can scarcely approve of the cumbersome method of administration of this principle. Unless a better method can be devised of applying the principle, it is doubtful if the principle will continue as a part of income tax procedure.

The British income tax employs the method of *stoppage at the source* in collection of the income tax. The tax is deducted from income before the taxpayer gets the income. The government, for instance, deducts the tax from interest on its own bonds before disbursing interest to bondholders. Private debtors likewise must deduct the stated tax from all debt payments, so that creditors receive only the net debts after the tax is out. Corporation shares must pay the tax before dividends are disbursed. Tenants of real property deduct the tax from the rentals due the landlords. Numerous forms of income, however, cannot be reached by stoppage at the source, and hence each taxpayer is required to make out a declaration of income. The American system has not made stoppage at the source a method of collecting the income tax, although certain forms of it have crept in. The most conspicuous form is the exemption of dividends from the normal tax on individual incomes, and the taxing of the corporation income directly at the source. The American system does, however, gather *information at the source*, by requiring all employers to report their salary and wage disbursements to the internal revenue bureau. The bureau can check back over the individual declarations to make sure that incomes have not been understated.

Centralized administration is the keynote of effective enforcement of

the income tax. The original fear that evasions would be universal has not been warranted in fact, because centralized state and federal administration has been reasonably efficient in ascertaining the proper amount of taxable income. State administration has particularly to face the problem of relating the income tax to the property tax. In some states, the income tax has taken the place altogether of the property tax in state revenue. In other states, the classified property taxes, in moderate forms, are used in conjunction with the income taxes. In many states, the receipts of the income tax are not used exclusively for state expenditure, but are apportioned in part among the local communities. In general, the adoption of income taxes has lessened reliance upon the general property tax.

At first, it was assumed that complete secrecy about income tax returns was indispensable. However, certain authorities advanced the doctrine that *publicity of returns* would help in preventing individuals from understating income and escaping taxation. In 1924, the principle of publicity of returns was established. It is questionable whether publicity is of any material advantage.

The fiscal adequacy of the federal income tax is shown in the following table:

THE FEDERAL REVENUE FROM THE INDIVIDUAL INCOME TAX *

Year	Number of Returns	Net Income of Individuals	Total Tax	Percentage Which Total Taxes on Both Corporation and Individual Incomes Are of Entire Ordinary Revenue
1913	357,598 ¹	\$3,900,000,000 ²	\$28,253,535	...
1914	357,515 ¹	4,000,000,000	41,046,162	9.7
1915	336,652 ¹	4,600,000,000	67,943,595	11.4
1916	437,036 ¹	6,300,000,000	173,386,694	15.9
1917	3,472,890 ³	13,700,000,000	691,492,954	32.0
1918	4,425,114 ³	16,000,000,000	1,127,721,835	67.8
1919	5,332,760 ³	19,900,000,000	1,269,630,104	55.6
1920	7,259,944 ³	23,700,000,000	1,075,053,686	59.0
1921	6,662,176 ³	19,600,000,000	719,387,106	57.8
1922	6,787,481 ³	21,400,000,000	861,057,308	50.8
1924	7,298,481	25,000,000,000	689,134,185	45.9

* *Statistics of Income*, Bureau of Internal Revenue, 1922, p. 32.

¹ Returns reporting net income of \$3,000 and over.

² Determined on the basis of the number of returns filed and the average net income in each class.

³ Returns reporting net income of \$1,000 and over.

The income taxes, both individual and corporation, are among the most *flexible* sources of revenue. By careful adjustment of rates from

year to year, the income taxes can be made to yield revenues suited to the needs of government. In this respect, the income taxes show marked superiority over the customs duties.

Finally, it should be noted that income taxation is a manifestation of a changing social philosophy. The public conviction that glaring inequalities of income should be curbed, and that the distribution of wealth should be more nearly democratized, has been behind the wave of income taxation.

War and Excess Profits Tax.—The World War gave rise to special taxes on the profits of corporations. The intent of these taxes was not merely to obtain revenue, but also to take from individuals some of the gains of war profiteering. Two main forms may be noted: the "war profits" taxes and the "excess profits" taxes. War profits were estimated by comparing current profits with average pre-war profits of corporations. At the height of this tax in 1918, the rate of taxation rose to 80 per cent of abnormal profits. In analyzing the second form, the excess profits tax, one must seek for a definition of "excess." Excess above what? The base used was an assumed rate of earnings of 8 per cent on invested capital. The assumption that 8 per cent was a *normal* rate was somewhat arbitrary.⁸ Super-normal income was taxed in 1918 at rates graduated from 30 to 65 per cent. These war and excess profits taxes yielded more than \$5,000,000,000 revenue in three years of operation.

In spite of their efficacy in raising revenue, these taxes met with stubborn opposition from business men everywhere, and they were repealed beginning with 1922. It was claimed that they were unjust, that they penalized enterprise, that they destroyed capital, and that they raised prices. A statistical survey of the consequences of these taxes does not clearly substantiate the criticisms hurled at them, but rather supports the conclusion that their alleged harmful effects were grossly exaggerated.⁹ The *method* of computing excess profits was doubtless fallacious from an accounting as well as from an economic standpoint, but the *principle* of taxing surpluses was in harmony with sound economic theory. It is not unlikely that the principle may be revived when the war experience has been forgotten, and better methods of computation and administration have been devised.

Inheritance and Gifts Taxes.—New York State adopted a modern form of inheritance tax in 1885, and since that time the tax has so widely commended itself that all of the states but two have adopted it in some form or other. The federal government imposed inheritance taxes during the Civil and Spanish-American Wars, but both measures were temporary. The serious development of the federal tax began with the law of 1916. The inheritance tax is thus a comparatively recent development.

⁸ An exemption of \$3,000 was also allowed in computing the normal return.

⁹ See David Friday, *Profits, Wages and Prices*, Chapters XI-XII, and in *Proceedings of National Tax Association*, 1924, pp. 306-315.

Taxes on estates may be imposed in either of two ways: first, they may be imposed upon the right of the deceased to transmit property, and then fall upon the *net estate as a unit*; second, they may be imposed upon the right of the heirs to receive property, and then fall upon the separate *distributive shares of the heirs*. Nearly all of the state laws tax the distributive shares, but the federal law taxes the net estate. The federal method of treating the estate as a unit greatly simplifies the administration of the law, but the method of the states of treating differently the distributive shares is more equitable for the heirs. Economists as a rule are inclined to favor the method of distributive shares.

The federal law exempts the first \$50,000 of an estate. In addition, it exempts \$40,000 of life insurance payable to a stated beneficiary, thus making possible a total exemption of \$90,000. The rates on the taxable excess begin at 1 per cent and rise to 40 per cent on amounts in excess of \$10,000,000.¹⁰ The rates are progressive according to a rather steep schedule. In the state levies, the range of rates on direct heirs runs from 1 to 3 per cent in Michigan to 2 to 14 per cent in Illinois, and on collateral heirs as high as 25 per cent in Oregon and 40 per cent in Wisconsin. There is a great deal of opposition to rates as high as those imposed in the federal law, on the ground that they exceed what the traffic will bear. It is said that they force men to evade the tax, and are not as remunerative as more moderate rates would be. The decline in the return from federal estate taxes indicated in the table below is cited by the Treasury Department as presumptive proof that the excessive rates already are drying up this source of revenue:

RETURNS FROM FEDERAL ESTATE TAXES

1921	.....	\$154,000,000
1922	.....	139,000,000
1923	.....	126,000,000
1924	.....	102,000,000

The most common method of evasion in the past has been to give away one's estate before death. In order to check this leak, the act of 1924 taxes gifts and donations at the same rate as estates. An exemption of \$50,000 is allowed, and an exemption is permitted of all gifts and contributions for public, religious, charitable, scientific, or educational purposes. Thus, benefactions are not taxed, but gifts from one's estate to heirs before death are taxed as heavily as the estate would be after death.¹¹ The efficacy of this device in preventing evasion can only be ascertained by the process of experimentation in enforcing the law.

¹⁰ In calculating the net estate, the following are some of the deductions allowable from the gross estate: funeral expenses, administration expenses, executor's commissions, attorney's fees, certain forms of taxes, unpaid mortgages, and bequests for religious, charitable, scientific, or educational purposes.

¹¹ Gifts and transfers made "in contemplation of death" are not exempt from the estate tax, and gifts made within two years prior to death shall, unless shown to the contrary, be deemed to have been in contemplation of death.

Where the tax is levied on the distributive shares, as in most of the state laws, *both the rate of progression and the method of exemption varies with direct and collateral heirs*. Wife and children are usually direct heirs, and more distant relatives are collateral heirs. The fundamental assumption is that direct heirs should be taxed less heavily than collateral heirs. Most of the states allow more liberal exemptions to the direct heirs, and impose less steeply graduated taxes upon their shares. In 1922, the states collected \$66,128,000 from inheritance taxes.

Much discussion has centered around the question whether the states or the federal government should have the inheritance tax as a main source of revenue. The weight of opinion inclines toward restricting the field to the exclusive exploitation of the states. The evils of duplication among the states have led, moreover, to the suggestion that the federal government collect the tax, and then divide it with the several states on some equitable basis. This proposal has so far been rejected by the states as too great an invasion of the rights of home rule. Owing to duplication, overlapping, taxation of non-residents as well as residents, and non-uniform administration, it is possible now for an estate to be taxed more than 100 per cent of its value.¹² The states now engage in a sort of cut-throat competition to pounce upon the lion's share of inter-state inheritances, and the result is to jeopardize the sound enforcement of the law. Reforms to eliminate retaliations, duplications, inequalities, and discriminations are urgently needed. To achieve these reforms, greater centralization of administration is imperative.

Finally, it must not be overlooked that estate taxes introduce serious social questions. A primary motive in the adoption of such taxes has been to prevent the accumulation and perpetuation of large fortunes. By breaking up the great fortunes, it has been hoped to preserve a more democratic diffusion of wealth. But over against this social motive must be set the danger of discouraging accumulation and of killing incentive. Men may cease striving to make fortunes, if all that they can look forward to is having their wealth taken away from their families at death. As yet, there is no evidence that the inheritance taxes have destroyed incentive. It is well, however, to keep the caution in mind. By trial and error, a balance must be struck between the dispersion of large fortunes and the preservation of incentive.

The Increase of Public Debt.—The recent increases in public debts of local, state, and federal governments are shown in the table on page 737.

The cause of state and local debt expansion is the development of public works and the expansion of social activities of government. Highways and public schools have been primary objects of state and local expenditure from funds raised by bond issue. Municipal debts are far heavier than state debts, largely because of the more extensive social functions of city governments.

¹² It is theoretically possible to tax more than 300 per cent of the value of an estate under existing laws.

Taxation and Productive Functions of Government 737

The cause of the recent great increase of national debt was the World War. The national debt of the United States increased from \$1,028,-564,000 in 1912 to \$22,155,886,000 in 1922. As a partial offset, European nations are heavy debtors of the United States government, the European debts to the United States amounting at the beginning of 1924 to about \$11,800,000,000. This European obligation does not include private investments by Americans in foreign securities, which would amount to about \$9,000,000,000 in addition. We are not here concerned, however, with the commercial loans to Europe, but only with the war loans.

PER CAPITA NET DEBT *

	1890	1912	1922
Total	\$31.76	\$49.97	\$283.70
Nation	13.60	10.59	203.78
States	3.37	3.57	8.64
All other government	14.79	35.81	71.32

* United States Census Bureau, *Wealth, Debt and Taxation*, 1922.

The per capita debts in leading countries increased greatly between 1914 and 1923. The following table indicates the extent of the increase: ¹³

PER CAPITA NATIONAL DEBTS, BOTH INTERNAL AND EXTERNAL

(In dollars of 1913 value)

	1914	1923
Great Britain	\$74.69	\$521.34
France	164.95	505.77
Germany	18.90	6.65
United States	10.48	203.78

The inter-ally war debts of all European countries amounted, with accrued interest, to \$28,261,000,000 in 1923. This represents purely the external debts of these countries. The internal debts were much greater. For all the allied countries, the internal debts totalled about \$154,000,-000,000, or about six times the external debts.

The best method of measuring the comparative burden of the war debts is to ascertain the per cent which per capita debt is of per capita wealth in each country.

¹³ H. E. Fisk, *The Inter-ally Debts*, pp. 324-342.

In the European countries, the debts were about one-third of the national wealth, but in the United States only about one-fifteenth of the national wealth.

PER CENT WHICH PER CAPITA DEBT WAS OF PER CAPITA WEALTH IN 1923 *

Great Britain	35.00
France	34.07
Italy	30.76
United States	6.35

* *Ibid.*, p. 343.

It was inevitable that these enormous debt burdens should result in corresponding increases of taxation.

PER CAPITA TAX COMPARISONS *

	Tax Per Capita				Per Cent Which Tax Was of Per Capita Income		
	1900	1913	1922	1924	1900	1913	1924
United States ...	\$18.18	\$22.94	\$72.29	\$70.30	7.77	6.68	11.06
United Kingdom.	20.28	26.89	107.54	99.43	9.99	11.29	24.77
France	19.30	25.12	80.97	94.23	14.96	14.11	20.01

* See E. R. A. Seligman, in *These Eventful Years*, pp. 433-439. See also National Industrial Conference Board, Report No. 55, *Taxation and National Income*, pp. 22-46, and Seligman, *Studies in Public Finance*, p. 43.

Seligman estimates that for the entire period of the war, only about 17 per cent of the expenses were defrayed by taxation in Great Britain, and 21 per cent in the United States. These two countries derived a larger proportion from taxes than most of the other belligerents. Much discussion has centered around the proposition that in time of war income should be conscripted as well as man power. The broad justice of such a proposal is apparent, but the feasibility of it is a different matter. The business mechanism is a pecuniary mechanism, a money economy. To conscript income on a basis adequate to finance a war would disrupt the smooth working of a money economy. The incentive of money gains would be affected so unfavorably that the whole pecuniary mechanism might slow up. This collapse could not be allowed to occur at the very time when maximum productivity was indispensable. The conscription of income would jeopardize the efficacy of the whole money economy and productive organization. Doubtless, war revenues could be more largely derived from taxation than was the case in the last war, especially in the earlier years of that war. The leading belligerents at the height of their burden were imposing taxes of 50 to 80 per cent on

the larger incomes. This was not far removed from conscription of such incomes.¹⁴

During the years following the war, the debt entanglements have been a stubborn hindrance to recovery. For five years following the World War, the network of reparations, inter-ally debts, and internal debts, served to suppress the productive energies of the nations involved. The resources were there to be used, the man-power was there, the facilities were there, but the money economy was out of balance because the debts hung like a pall over those nations. Gradually a process of funding the debts into long-term obligations, of balancing budgets and removing deficits, and of checking inflation, released the productive energies of the people. The legacy of war is a mass of loans which smother productive capacity. If loans and debts are inevitable in war financing, then the consequences of war are indeed onerous for succeeding generations.¹⁵

Turning to the problem of state and local debts, we find that although war loans are no part of their debts, nevertheless war influences have had important indirect effects upon them. During the war, states and cities let their properties run down. New building came to a halt. Maintenance was narrowly restricted. As soon as the war was over, public buildings had to be constructed, roads had to be built, streets had to be paved, and school buildings had to be brought up to requirements. The states and local communities faced an extraordinary need for public works. They could not raise the funds suddenly by taxation and so resorted to bond issue. The total of bond issues by state and local governments in the last war year, 1918, was only \$297,000,000, but in 1921, and each year thereafter, it was more than \$1,000,000,000.

The growing burden of state and local debt has been alarming. It has been asserted that these expenditures are a proof of public extravagance and waste. Moreover, it has been claimed that a paramount cause of such extravagance is the practice of making public securities tax exempt. Part of the federal obligations are tax exempt, and all state

¹⁴ Seligman has said, "In order to raise even one-half, not to speak of the total, of the nineteen billions that were asked for in 1918 and of the still larger sums which would be needed as the war progressed, it would have been necessary not only to take by taxation most of the smaller incomes and virtually all of the larger incomes, but also to confiscate virtually all of business profits, and finally, after levying crushing taxes on consumption, to take such part of the existing private property of the United States as could find a ready market abroad." *Essays in Taxation*, 9th edition, p. 746. See also E. L. Bogart, *War Costs and Their Financing*, especially pp. 317-321, and O. M. W. Sprague, *Loans and Taxes in War Finance*, *American Economic Review*, Supplement, Volume VII, 1917, p. 199 ff.

¹⁵ Economics points out that so far as internal debt is concerned, the war is paid for as soon as it is over. This is true in the purely physical sense. The munitions and other materials destroyed in war must be produced before they can be used, and if they have already been produced, the war is fully paid for physically on armistice day. Thereafter, it must be paid for financially. This is the obnoxious payment. It consists of forcing one class, the taxpayers, to pay over to another class, the bondholders, the war debt. The country is neither richer nor poorer by this transfer. There has simply been an exchange of money between two classes within the country. Nothing has passed out of the country by that exchange. One class gains what the other class loses. To the extent that taxpayers are themselves bondholders, they are paying the debt to themselves.

and municipal obligations are exempt from federal taxation. State tax exemption is also widespread. According to the critics of tax exemption, the practice encourages the growth of public indebtedness and tends to divert capital from productive enterprise. Concerted effort has been brought to bear to secure an amendment to the federal constitution eliminating tax exemptions, but the proposed amendment failed to pass the House of Representatives in 1924.

The total amount of wholly tax-exempt securities outstanding in 1924 has been estimated at \$15,107,000,000, of which more than three-fourths were securities of states, counties, and cities. In 1912, there were less than one-third this amount outstanding.¹⁶ The rate of growth in the last decade has been rapid. But whether this growth indicates extravagance and waste on the part of government is a debatable question. Certainly the building of roads has been a necessity, and is just as truly a productive effort as any form of private enterprise. Certainly the building of schools has been a necessity, and is a genuinely productive function. These two forms of expenditure have been the main cause of the growth of tax-exempt security issues. It may be that some road building has been needlessly expensive. It may be that some public schools have been too elaborate or ornate. But it is doubtful whether such extravagance is of serious proportions. Fundamentally, the expenditures have been productive and they have been necessary.¹⁷

Although the alleged evils of tax exemption are doubtless exaggerated, nevertheless it does not follow that exemption is a good thing. Tax exemption tends to enable the higher incomes to escape from the full brunt of the income surtaxes. Tax exemption aids tax evasion. Yet the evasion is not as great as it might appear. If a city builds a public school by issuing 4 per cent tax-exempt bonds, the city is enjoying the economy which goes with low interest burden. What it thus saves in interest, it does not have to raise at all by taxation. The local taxpayers suffer a lighter burden wherever funds can be raised at low interest rates. If the saving in interest to the city were exactly equal to the tax evasion gained by the holder of the securities, obviously there would be neither gain nor loss in the long run. What the rich investor gained by tax evasion, he would lose by receiving only a very low rate of interest. What the municipality gained by marketing securities at low interest cost, it could pass on to the citizens in the form of lightened taxes. But in fact, it has been found that gain and loss are not exactly equal. The rich investor tends to save more in taxes than he loses in taking the lower interest rate. Consequently, tax exemption costs the government more in taxes than it saves them in interest. There would thus be an advantage in eliminating the tax exemptions now obtaining.

There is no absolute rule for properly regulating the amount of public

¹⁶ Mellon, A. W., *Taxation, The People's Business*, pp. 199-201.

¹⁷ See T. S. Adams, *Proceedings of the National Tax Association*, 1922, pp. 269-285.

indebtedness. No arbitrary blanket rule suffices. Changing conditions and circumstances alter the problem of public debts in fundamental ways. In general, it is unjustifiable to use public debt as a means of meeting purely current and ordinary expenses. Debt should be incurred only for unforeseen emergencies, extraordinary needs, and capital outlays. In general, public debt incurred to enable government to engage in public ownership and operation of such industries as waterworks and utilities, where private enterprise has proved inadequate, is justifiable. But even in such cases, it is doubtful if debt is justifiable unless public ownership can be run on a cost paying basis. Cost must include not merely current expenses, but depreciation and maintenance, and a sinking fund for the gradual retirement of the principal of the indebtedness. Moreover, in general, public debt is justifiable for capital outlays to secure some essential public purpose. Outlay for highways or schools would come under this classification. The initial expense of such projects is so great that it must be spread over a period of years by the use of the public credit. Economy is better than lavish expenditure, of course, and very often the governments tend to sin on the side of lavishness rather than of thrift. These general considerations are of primary importance in holding public expenditure by debt creation in check, and even though they do not apply in any arbitrary and uniform manner, nevertheless their influence is perceptible and important in guiding the course of government economy.

The Fiscal Budget.—The proper coördination of receipts and expenditures requires careful planning, or *budgeting*. The preparation of the budget involves a careful analysis of income, both present and prospective, and a limitation of expenditures to correspond with total revenues. A budget aims to balance income and outgo. The executive branch of the government is best qualified to prepare the budget. Some form of bureau or commission, responsible to the executive, is the most acceptable administrative plan. Probably the best case of executive budgeting is that of the British government, where that function devolves on the Treasury and Ministry of Finance. The House of Commons cannot entertain appropriation measures except those coming through this channel. American constitutional traditions are such that the executive must work in coöperation with the legislative branch in the formulation of the budget. In the federal government, the President prepares the estimates, but members of Congress have the power to introduce appropriation and taxation bills. In the state governments, many variations of this type of relationship appear. In general, the legislatures retain the right to initiate all legislation. Budgetary practice in the United States is in its formative stage, and although it is not satisfactory, it is now developing in the right direction.

The Shifting and Incidence of Taxation.—Probably no phase of public finance interests the public more than the question of who ultimately pays the taxes. Many theories have been advanced in explanation of the shifting of taxes, but there is not space here to discuss them

separately. For our purposes, it is necessary to distinguish between different classes of taxes. Some taxes can be shifted, whereas others cannot. Some can be shifted partially, some completely, and some by more than the amount of the tax.

Poll taxes under all ordinary conditions cannot be shifted, since there is no further price transaction by which they can be passed on. Likewise, inheritance taxes cannot be shifted, for there is no further purchase and sale by which the tax can be transferred. Income taxes, for the most part, cannot be shifted. This conclusion is contrary to the popular assumption, but there is good economic ground for the position. As explained earlier, the price of a product tends to reach the point where it will just sustain the marginal concern in business. Marginal concerns fix the price for all concerns. But marginal concerns are no-profit concerns, and therefore pay no income tax. The only concerns which can pay an income tax are those which make a net income, and such concerns are not marginal. They have lower costs than marginal concerns, but sell at the same price. It is not enhanced prices but reduced costs which explain profits. Since marginal concerns pay no income tax, obviously the tax cannot raise the marginal price. The income tax falls not on margins but on surpluses. If a concern which is taxed on surplus income tries to shift the tax by raising prices, the only consequence will be a decline of sales. They will be spiting themselves in the long run. A general tax on income cannot be materially shifted. By way of exception, it may be noted that if one special class of incomes is singled out for taxation, the isolated class may be able successfully to shift the burden. Capital will be driven out of the oppressed class of industry, production will become scarce, and scarcity will force prices up. But a well-diversified income tax cannot be shifted in this way, because capital discontented in one line has no other place to go. All lines face the same tax load.

A tax on economic rent of land or on monopoly cannot be shifted. Let us assume that a man has bought land at a price of \$400. The rent or income is \$20. Thereafter, a tax of \$5 is levied. The new net income is only \$15. What will a prospective purchaser pay for the land? Obviously, he will pay a price equal to the capitalized value of the new net income. Taking the same rate, 5 per cent, in both cases, we find that the new net income capitalizes at \$300. The old owner cannot sell his \$400 land for more than \$300 to any intelligent buyer. The tax of \$5 is capitalized, and the \$100 value so ascertained is deducted from the original price of the land. The original landowner pays the tax. He cannot shift it to the new purchaser.¹⁸

¹⁸ The Physiocrats, who believed that agricultural uses of land were alone productive, advocated the *impôt unique*, or single tax, on land. Henry George, who desired to correct the concentration of land ownership, especially in California, revived this doctrine, and vigorously applied it to modern conditions, in his famous book on *Progress and Poverty*. Several features of this proposal may be noted briefly. First, the single tax is a measure of social reform primarily, and only incidentally of revenue. It is intended to decentralize ownership, destroy private

A tax on monopoly cannot affect the primary force which determines monopoly price, namely, all that the traffic will bear. The monopoly price will be fixed at that level to begin with, and the tax will have nothing to do with what the traffic will bear. Any addition to monopoly price designed to cover the tax would simply penalize the monopolist by cutting down sales so much that his net earnings would be less than at the original price.

Excise taxes, especially taxes on consumers' goods, are shifted to the consumer in large part. Indeed, they are likely to be shifted not only by the original amount of the tax, but by something in excess. The tax is pyramided when it is passed on. Import duties are generally shifted, in whole or in part, although under certain circumstances, some of them are not shifted at all. The American tax on sugar and wool tends to be shifted in excess of the duties collected, because part of the product is grown at home, and this part sells at the enhanced price obtained for the imported product, although no duty is collected on it. On the other hand, the tariff on wheat is probably not shifted at all, because the United States produces an exportable surplus, and prices are fixed by world supply and demand.¹⁹

The basic distinction which underlies all discussion of shifting and incidence is that between margin and surplus. A tax on marginal industry tends to be shifted fully, but a tax on surplus tends not to be shifted at all. Surplus is not a part of cost of production, but is due to the fact that many concerns can produce at less than the marginal cost, although they sell at the general price fixed by the marginal concern. Yet even this basic distinction must not be taken in any absolute form. The individual peculiarities of each tax require analysis in light of the separate problems which they raise. The whole theory of incidence suffers from the fact that it is only a theory, and lacks adequate statistical verification. The theoretical principles are useful, but should not be

profit in land, and redistribute wealth. Second, the incidence of the single tax is on the land owner. The tax would stay put where the single taxer wants it, and would not be shifted to consumers or diffused throughout the community. Third, the economic assumptions underlying the proposal are that land is the gift of nature, that man did not produce it, that landlords derive rent, or income, from it purely because of the scarcity of the better grades of land, that such income is wholly unearned, is not the result of effort, is utterly undeserved, and that it should therefore revert to society through the channel of the single tax. Fourth, the proposal is defective in that it would yield an inflexible amount of revenue, and would alternately be fiscally over-adequate and under-adequate. Fifth, the rent or surplus of land should not be singled out for exclusive penalty, but surpluses wherever found, in all branches of economic life, should equally bear the burden of taxation. Sixth, to impose a single tax on land already in private ownership would confiscate the rent, and so confiscate the entire value of the land. The plan would involve wholesale confiscation. Seventh, it would intensify taxation upon the farmer, who already is taxed so heavily as to threaten his prosperity. Eighth, its dream of ushering in the social millennium by a simple weapon partakes of the nature of those countless panaceas for human ills which ignore the insuperable difficulties to their adoption and successful operation. Adherence to the single tax program at the present time is confined to a small minority of economic students.

¹⁹ See above, pp. 694-95, for more detailed discussion of the shifting of the American import duties.

taken as adequate guides until statistical verification is more complete than at present.²⁰

Conclusion.—Government serves productive ends in the modern economic organization. It is not a burden, any more than any necessary expense of production is a burden. Yet, in order to do its productive work, government must spend its income for right purposes and must derive its income by right revenues. The purposes of expenditure and the economic effects of its revenue measures are the criteria of government productivity.

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²⁰ J. A. Hobson has carried the analysis of margins and surpluses further than any other modern writer, and has proposed a new system of taxation based upon surpluses. See his books, *Taxation in the New State* and *The Industrial System*.

PART VIII

ECONOMIC CONTROL

CHAPTER XXXVI

PUBLIC CONTROL

Economic Adaptation.—All problems of economic improvement are fundamentally two-sided; on the one hand, they necessitate the alteration of institutions the better to fit human nature; and on the other hand, they necessitate the discipline and education of human nature the better to fit institutions. The solution of economic problems requires a blending of human nature and economic institutions. Economic progress involves always the basic element of adaptation between two prime factors, men and institutions. W. E. Hocking refers to man as “the only animal that deliberately undertakes, while reshaping his outer world, to reshape himself also.” The human equipment needs discipline and guidance in ways which are not degrading or weakening, and needs opportunities for expression in ways which represent a fulfillment of the primary human impulses. At the same time, institutions should be made to function in such ways that human nature will be neither outraged nor pampered, but will be evoked, expressed and satisfied within social bounds.

Every student comes to economic discussions with certain first principles which give him his orientation for economic thinking. It is these first principles, these elementary conceptions mostly born of family and social traditions, which need scientific examination. As Justice Holmes profoundly observes, “To have doubted one’s first principles is the mark of a civilized man.” The first principles of the progressive and of the conservative differ deeply, and in no way more fundamentally than in this respect: the conservative-minded thinker inclines to give present-day institutions the benefit of all doubts and to assume that liberals or radicals, mild or extreme, need discipline to make them conform; whereas the progressive thinker inclines to give human nature the benefit of all doubts and to assume that institutions should be reshaped to permit human nature more freely to follow its own bent. Conservatives tend to believe that human nature is wrong when it is unruly or dissatisfied; progressives tend to believe that laws, organizations, systems, institutions, are wrong when men become impatient with them. One

wishes to reshape *human nature* by new disciplines; the other to reshape *institutions* by reconstruction.

Economic adaptation between these two factors may, of course, come about in many ways,—by mere chance, by blind drifting, by coercion, by pacifistic surrender, by coöperation, by rebellion, by intelligent planning. The economic order is today so stupendous in its proportions that individual thinkers all too often look upon the course of adaptation with a fatalistic attitude, and resign themselves to the inevitability of economic evolution with an optimistic illusion that all will turn out for the best some day anyhow. Such attitudes lie behind the frequent blunders and futilities in modern economic adjustments. Economic thinking worthy of the name must conform with the viewpoints and conceptions which are insisted upon by the reconstructed philosophy of recent years,—it must be devoted to *creative adaptation*. Adaptation which is safe and trustworthy is an act of will, based upon an intelligent analysis of facts. It comes from “creative intelligence.” To effect a decent balance in reshaping human conduct and economic institutions calls for the most elaborate scientific investigations to ascertain the pertinent facts, for experimentation with alternative courses of economic policy, for unlimited research by private experts and public commissions, for the invention of theories and hypotheses to be tried out and proved or disproved, for the creation of new principles of human behavior, for the discovery of new solutions of pressing economic problems. Adaptation which is sound and wise has to be wrought out by the deliberate effort of creative minds. Adaptation involves a technique of inquiry, research, experimentation, scientific guessing, reflection, observation, analysis, diagnosis, inference, hypothesis, testing, and verification. In modern society there are specialists and experts, responsible leaders, who are, or should be, adepts in the use of this technique, and upon them naturally falls the burden of formulating the lines of economic adjustment in their broadest and deepest aspects. But any overreaching in the direction of specialization, on the assumption that one class in society should do all the planning, and another class all the handwork and none of the planning, would be dangerous. In his own individual way and within the limit of his powers, every man deserves the responsibility of planning, suggesting, imagining, and few indeed are the members of society who, under proper encouragement, lack that spark of curiosity which seeks satisfaction in ideas, plans, and suggestions. The caliber of the average individual will be measured by the degree to which the latent powers of his human equipment are called into creative use. If he is a thing accustomed to act always under orders, a being whose thinking is done by specialists only, his human equipment is bankrupt in regard to those qualities of personality which can arise only from self-expression and self-assertion. So in his individual manner each person in economic society must be somewhat creative and original and curious if he is to be the best possible member of society.

If the mass of individuals are to have originality and creative ability,

each individual must be encouraged to make wise new adaptations to his immediate environment every day of his life. Not obedience and unquestioning conformity, but individual creative adaptation is the first law of life. The individual must be free and able to plan improvements in the system under which he moves and works, and he must be constrained to that measure of self-control and self-direction which is necessary to keep him in tune with his immediate universe. The words of John Dewey on this matter are deeply suggestive: "The best guarantee of collective efficiency and power is liberation and use of the diversity of individual capacities in initiative, planning, foresight, vigor and endurance. Personality must be educated, and personality cannot be educated by confining its operations to technical and specialized things, or to the less important relationships of life. Full education comes only when there is a responsible share on the part of each person, in proportion to capacity, in shaping the aims and policies of the social groups to which he belongs. This fact fixes the significance of democracy. . . . Human nature is developed only when its elements take part in directing things which are common, things for the sake of which men and women form groups—families, industrial companies, governments, churches, scientific associations and so on. . . . When the liberating of human capacity operates as a socially creative force . . . making a living, economically speaking, will be at one with making a life that is worth living." ¹

As soon as the average person comes face to face with this attitude toward economic problems, he naturally inquires: What is your solution? What is the remedy for the difficulties of the economic order? What is your answer to the multitude of economic questions which arise on every hand? This kind of inquiry is usual and natural. Men are in search of an ultimate solution for the whole thing. They suppose that of course each man ought to have a theory about the way out of all troubles. Then he could say to everybody, Now if only you would adopt this scheme, all would be well. If only you would put this solution into practice, nothing else would be necessary. And the only trouble with such ultimate solutions is that people simply do not adopt them. Just that is the futility of these single ultimate remedies based upon an "if only." They assume a human behavior which is contrary to fact. It might as well be put bluntly and boldly that there is no one simple solution, and those people who pretend to have one are obliged to live in an imaginary world where everything would be all right if only people would not do the things which people do and if only men would behave in those ways in which they won't behave. Realists who are willing to deal with actual human nature and actual institutions find that we are confronted with a great bundle of economic problems, and bundles within the bundle, and bundles within the bundles. Each requires investigation, inference, experimentation and creative imagination for its solution. Problems of coördination and correlation between all the bundles

¹*Reconstruction of Philosophy*, pp. 209-211.

of problems will come to the front. The world of economic problems is teeming with infinite diversity, peculiarity, individuality, variety, and the realistic mind seeks to adapt each to each and each to all. This attitude is always a disappointment to many minds, because it gives no rock of ages to step foot upon, but instead makes every man an explorer, a pathfinder, a trail blazer, a discoverer. If it has less certitude, it at least has infinitely more practicality. The specific implications of this attitude are so ably stated by Dewey that it is well to quote him again: "Just what response does this social arrangement, political or economic, evoke, and what effect does it have upon the disposition of those who engage in it? Does it release capacity? If so, how widely? Among a few, with a corresponding depression in others, or in an extensive and equitable way? Is the capacity which is set free also directed in some coherent way, so that it becomes a power, or are its manifestations spasmodic and capricious? Since responses are of an indefinite diversity of mind, these inquiries have to be detailed and specific. Are men's senses rendered more delicately sensitive and appreciative, or are they blunted and dulled by this and that form of social organization? Are their minds trained so that the hands are more deft and cunning? Is curiosity awakened or blunted? What is its quality: Is it merely esthetic, dwelling on the forms and surfaces of things, or is it also an intellectual searching into their meaning? . . . What is needed is specific inquiries into a multitude of specific structures and interactions." ²

The discussion of economic adaptation may be conveniently presented under three main headings: Public Control, Economic Radicalism, Economic Democracy.

Public Control.—The major economic problems, almost without exception, exhibit phases which refer to some form or degree of government control, and the major policies of modern government almost without exception exhibit phases which refer to economic conditions. So politics abounds with economics and economics abounds with politics. The extent to which government should interfere in business is often a matter of bitter debate, and each separate problem has to be disposed of on its own merits. Those economists who are not averse to a liberal measure of governmental control look upon government policies not primarily as an interference with business conditions, but rather as a means of smoothing out troubles and injuries arising from unrestrained business adventures, and of aiding and guiding business toward higher standards. The function of government is not to meddle and intrude where it is not needed, but to coöperate and constrain and direct and reconstruct where economic conditions fail to right themselves. Referring to this positive responsibility of government, a thoughtful political scientist says, "The most striking change in the political organization of the last half century is the rapidity with which, by the sheer pressure of events, the state has been driven to assume a positive character. . . .

² *Reconstruction of Philosophy*, pp 197-198.

And, in the main, it is reasonably clear that political good is today for the most part defined in economic terms."³

Since the World War, the people of the United States have reacted strongly against the extreme forms of government control of economic affairs. The reaction is well defined in a catch phrase which has won wide currency,—less government in business and more business in government. The war emergency brought the basic economic activities of the country under close government supervision. The Federal Government assumed control of the economic life of the nation through a vast administrative machinery: The Food Administration to conserve the food supply, restrain prices, and distribute the supply where most needed; the Fuel Administration to control prices of fuel, and regulate priorities in its use; the Railroad Administration to operate, coördinate and unify the transportation facilities of the country; the President's Mediation Commission, the National War Labor Board, the War Labor Policies Board, and other special boards, to arbitrate labor disputes, establish industrial standards, adjust wages, and secure maximum labor efficiency; the United States Shipping Board and the Emergency Fleet Corporation to construct ships rapidly, control ships seized from the enemy, and mobilize and direct the shipping forces of the nation; the War Trade Board and the War Trade Council to regulate exports and imports, and to apprehend efforts at trading with the enemy; the War Finance Corporation and Capital Issues Committee to conserve the credit resources of the country for industries essential to winning the war; the War Industries Board to organize the industrial resources of the country for essential war purposes; and other special boards to handle war publicity, stimulate science and invention, investigate and control enemy aliens and their property, construct aircraft, and direct war-risk insurance. Most of the war boards made large use of the practice of licensing corporations as a means of controlling their conduct. Price-fixing, household thrift, priorities, and other means of enforcing war policies brought the great bulk of the economic life of the country under the War Administration.

The extreme extent of this war control placed the business of the country in a position where freedom of initiative and independent judgment were drastically curbed. Although the business interests were as a rule patriotic and willing to submit to superior direction while submission was necessary to win the war, nevertheless the surrender of their freedom to conduct their private businesses was not a pleasant experience, and the minute the war was over business men were straining at the leash to escape from the rigid restraints of war days. The President reflected the predominating sentiment of the country when, shortly after the armistice was signed, he declared in a message to Congress, "While the war lasted . . . we put every material energy of the country in harness to draw the common load and make of us one team in the accom-

³ H. J. Laski, *Authority in the Modern State*, pp. 81, 98.

plishment of a great task. But the moment we knew the armistice to have been signed we took the harness off." The war brought the most comprehensive organization of economic life that Americans had ever witnessed, and the restraint and subordination which it involved were repugnant to the American spirit of free initiative and independence of action. The American people made up their minds that they did not desire so far-reaching and inclusive regulation of their economic life. On the whole, the American people were relieved at the prospect of being able to scrap the war organization and to return to a generous degree of individualism in their business pursuits.⁴

The paramount form of government control is familiar under the name of government regulation. Regulation has been carried furthest in those branches of economic activity which are in the nature of public utilities. During the last fifteen to twenty years, city, state, and federal commissions have grown up to regulate rates and services for public utility corporations. Such corporations include the telegraph, the telephone, water, light, gas, street railways, and steam railroad companies. The railroads have been subject to a great deal of regulation by the separate states, but recently the superior authority of the federal government and its Interstate Commerce Commission over all interstate carriers has been definitely established. The other classes of public utility corporations have for the most part been subjected merely to state and municipal regulating commissions. These commissions have been indispensable to protect the public from unreasonable or unfair rates, and from inferior and inadequate service. Commission regulation of these corporations has come to be accepted as a necessary public policy, and the rulings of the commissions have as a general rule been tempered with a commendable fairness and reasonableness.

The principle of regulation has been most fully developed in the great interstate railroad systems of the country. Railroad transportation is the largest single industry in the country in regard to capital invested, labor employed, and public importance. The railroads are a key industry of the country, and transportation is an indispensable aid in the conduct of practically every important business.

The railroads early developed abuses, such as discriminatory and excessive rates, the granting of rebates to favored shippers, lack of regard for the public interest in the matter of service, and so on; and in 1887 Congress created the Interstate Commerce Commission to deal with these abuses and to exercise other regulatory powers over the railways in the public interest. From that year until the present time the Commission has functioned, and its powers and duties have been defined, enlarged and strengthened by several subsequent acts of legislation. The latest law of fundamental significance in railroad regulation is the Esch-Cummins railroad law passed in 1920. This act terminated the period of government operation which had been entered upon in 1917 as a war measure, and delegated broader powers of control to the federal

⁴ W. F. Willoughby, *Government Organization in War Time and After*.

regulating bodies. The main features of the regulatory machinery and its functions may be given very briefly as follows: Regulatory power is vested in an Interstate Commerce Commission of eleven members, each drawing an annual salary of \$12,000, and appointed by the President with the consent of the Senate. Terms of office are seven years. The Commission is directed by the Esch-Cummins law to fix railroad rates at a level which will make possible the payment of $5\frac{1}{2}$ per cent dividends on the aggregate value of the carriers' property, for the two years immediately following the termination of war control on March 1, 1920. Roads which earn in excess of 6 per cent are required to divide the excess equally with the government. This provision for division of the excess above 6 per cent is a permanent provision, and is not limited to the two-year period specified. The railroads' share of the excess goes into a reserve fund of the railroad, and can only be drawn upon for the meeting of dividend, rent and interest charges, and for that purpose only to the extent of 6 per cent of the value of the railroad's property. The government's share of the excess above 6 per cent goes to a contingent fund, to be drawn upon to extend necessary credits to railroad companies or to purchase equipment to be leased to them. The Commission is directed by the law to follow as a permanent principle in rate-fixing the obligation to "prescribe just and reasonable rates," so that the carriers as a whole will, "under honest, efficient and economical management and reasonable expenditures for maintenance of way, structures and equipment, earn an aggregate annual net railway operating income equal, as nearly as may be, to a fair return upon the aggregate value of the railway property." The Commission is to publish from time to time "what percentage of such aggregate property value constitutes a fair return thereon." The law specifies $5\frac{1}{2}$ per cent as the rate of fair return for the first two years following the abandonment of war control of the roads. Prior to the Esch-Cummins law the Commission had power to fix maximum rates, but the new law gave it power also to fix minimum rates. This provision enables the Commission to prevent the stronger roads from engaging in forms of "rate-cutting" which amount to "cut-throat competition." These rate-fixing powers are equivalent to what would be price-fixing powers in the ordinary line of industry.

The Commission, moreover, has supervision over the issuance of stocks and bonds by railroads, its approval being necessary before new issues can be made. The guiding criterion for the Commission in passing upon proposed security issues is that they shall be "reasonably necessary and appropriate" for giving proper transportation service to the public. Another provision refers to combinations of railroad companies, and permits combinations, subject to the Commission's approval, provided such combinations are brought about "under a lease or by the purchase of stock, or in any other manner not involving the consolidation of such carriers into a single system for ownership and operation." As soon as practicable, the Commission is directed to prepare a nation-

wide plan for the consolidation "of the railway properties of the United States into a limited number of systems," and consolidation of railway corporations in ownership and operation are permitted in the discretion of the Commission. Such railroad combinations and consolidations are specifically exempted from all previously enacted laws for the regulation and control of trusts. This general provision of the Act looks toward a unification and coördination of the railway lines of the country, and is an outgrowth of the lessons learned in railway operation during the war period when unification and coördination of the lines were of the utmost importance. Plans have been drawn for nineteen main systems of railroads, but the companies have been reluctant to enter into the proposed consolidations. The plans for consolidation are not compulsory, but are permissive only. Under the present law, the railroads cannot be coerced into combining.

A further set of provisions empowers the Commission to require of the carriers during normal times the proper amount and quality of service to insure that the transportation needs of the nation are reasonably met, and during times of stress or emergency to redistribute railroad equipment and service in any way necessary to meet the demands of the emergency period. Complete control of all railroad operations would fall to the Commission in case the emergency were war or the imminent threat of war. Certain of these provisions empower the Commission to require the joint use of terminals by various roads, and to apply priorities and preferences in the use of railroad equipment when desirable. Old roads cannot be abandoned nor new ones constructed without the approval of the Commission. These powers constitute in their entirety a comprehensive control over virtually all vital parts of the railroad business, and by thus regulating rates, service, finance, construction, competition, consolidation and dividends, the Interstate Commerce Commission assumes a position of the greatest importance in guaranteeing that the transportation facilities of the country shall render the public reasonable service under reasonable terms.

One group of provisions in the Esch-Cummins railroad bill establishes regulatory machinery for the adjustment of disputes, grievances and relations between the railroad companies and their employees.⁵ The railroads and the employees may by mutual agreement set up Boards of Labor Adjustment to settle all disputes regarding "grievances, rules or working conditions." These voluntary Adjustment Boards are supplemented by a Railroad Labor Board, composed of nine members, three each representing employers, employees and the public. The powers of the Railroad Labor Board comprehend not merely disputes about "grievances, rules, and working conditions," but about wages as well. *The Board has power to enter upon an investigation of any dispute which threatens to interrupt the operation of the roads, and to make an award in settlement of the dispute.* The Board relies upon publicity and public opinion for the enforcement of its decisions. In the early history of the

⁵ See above, p. 440, for further discussion of the Railroad Labor Board.

bill, a definite anti-strike clause was proposed, enabling the Board to enforce all of its decisions, and giving it power to impose fine or imprisonment upon employers or employees who might fail to obey decisions. This proposed clause was bitterly fought by labor leaders, and by some public authorities, so that as finally arranged in conference the law excluded the anti-strike clause and relied upon public opinion for the enforcement of decisions. *Investigation* of disputes is compulsory, and, regardless of whether employees or employers so desire, the Board is under obligation to make an award and give the terms of the award wide enough publicity to create an informed public opinion on the case.

The Railroad Labor Board and the Interstate Commerce Commission together have thus a firm control over every important phase of railroad operation. Through these agencies public regulation of the greatest public utility of the nation is made thorough and far-reaching. The major owners of railroad securities and the executives of the roads were very eager to recover the lines from the hands of the government, and to resume private operation. Private operation under such drastic regulation places private initiative and competition on a new plane. Competition in service is much talked about, and competition in efficiency and economy is approved of. But even these forms of competition are subject to drastic regulation on the part of the Commission. The condition of the railroads since the enactment of the Esch-Cummins law has not been fully satisfactory, and weighty difficulties have appeared in securing adequate railroad credits, in effecting adequate economies in operation, and in working out satisfactory adjustments of labor relations. Not a few authorities feel that eventually the present form of drastic regulation will lead to outright government ownership and operation. Perhaps one of the strongest forces tending in the direction of government operation is the persistence of menacing labor relations. Rumors of strikes and threats of strikes are constantly being heard, and unless the roads can find ways of adjusting their troubles with labor the possibility of government operation is not a slight one.

The personnel of the Interstate Commerce Commission and of the Railroad Labor Board and Adjustment Boards has a steady influence upon the success of regulation. Unless the appointments are of a nature to command a reasonable amount of public confidence the system cannot be expected to succeed. Probably a weightier factor in the success of regulation exists in the motives and attitudes which prevail among both the rail executives and the rail laborers. Their attitudes and motives determine fundamentally the effect of regulation upon railroad service to the public. On the labor side, it should be observed that labor union leaders give evidence of a profounder respect for the vital needs of the public than they manifested in 1916 when the persistent threat to strike led to the Adamson Act regulating hours of labor. The laborers, however, feel a continual suspicion of the owners and executives, believing that they are utterly unwilling to grant the laborers adequate wages, adequate union representation, and adequate working conditions. This

suspicion prevents a sound morale among the army of railroad workers, and as long as it persists in its present unhealthy degree the trials of those who are responsible for regulation will be heavy, and the service of transportation will be below its possibilities. On the part of the railroad presidents and executives, it is probably accurate to state that the sense of public responsibility has materially increased in recent years. For the most part they admit the inevitability and necessity of thorough regulation, and are disposed as a rule to give reasonable coöperation to the regulators. In this respect, the "public be damned" attitude is mainly a thing of the past, and a "public be served and pleased" attitude is more in evidence. The low salaries paid to railroad executives, in comparison with those paid to the executives of the largest industrial corporations, has led a responsible railroad official, Daniel Willard, to remind the country that under such salary scales the best executive ability will not in future years be attracted to railroad positions. Such a drift of the best executive ability of the country toward the higher paid industrial positions would leave the management of the railroads to second-rate ability. In the course of time, such a tendency would severely handicap the transportation service of the country.

The development of motives among great railroad executives is splendidly suggested by a remark of Otto H. Kahn on the career of one of the greatest figures in American railroad history, Edward H. Harriman: "His career was the embodiment of unfettered individualism. For better or for worse—personally I believe for better unless we go too far and too fast—the people appear determined to put limitations and restraints upon the exercise of economic power, just as in former days they put limits and restraints upon the absolutism of rulers. Therefore, I believe there will be no successor to Mr. Harriman; there will be no other career like his." The ability of great men to harness their capacities in a coöperative enterprise as enthusiastically and energetically as they formerly did in individualistic effort is basic for successful railway administration in the new era of complete regulation of railway enterprise.

Regulation of banking has been described in detail under the chapter having to do with banking principles and practice. At this stage it is enough to point out that the Federal Reserve system establishes a machinery for the regulation of banking practice, but that this regulation does not go to such lengths as does the regulation of the railroads. The manner of selection of the directors of the Federal Reserve banks gives to the bankers themselves the real power in selecting the dominant portion of the boards of directors. Banking regulation does not come merely from the top down, but fundamentally organizes the bankers themselves in a coöperative treatment of banking problems. There is less government dictation and more self-discipline in the Federal Reserve Board. A question which promises to become of increasing public interest relates to the powers of the Federal Reserve system in stabilizing business conditions and averting the extremes of business cycles. Many

students believe that a proper regulation of discount and interest rates would restrain business from excessive expansion in times of prosperity, thereby avoiding extremes of depression, and would encourage recovery by offerings of credit at low rates during dull business periods. This issue is the topic of much thought and discussion, and a decision in favor of strong powers of this sort in the hands of the Federal Board would have deep consequences for the business community. The traditions of individualism in banking are against the move, whereas those who are not afraid that coöperation and control in this way would be paternalistic are more inclined to be favorable.

General Regulation of Business.—The general regulatory machinery for ordinary business activity exists mainly in the Federal Trade Commission and in the judiciary. The basic laws establishing definite control are the Sherman Anti-trust Law of 1890 and the Federal Trade Commission and Clayton Acts of 1914. Outside of these statutory laws, the courts have dealt with business practices to a considerable extent under the principles of the common law.

The Sherman Act of 1890 decreed that "Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is hereby declared to be illegal" and that "Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a misdemeanor." The act concerned itself primarily with combination to restrain trade or to form monopoly. For more than a decade following the enactment of the law, the interpretations placed upon it by the courts made it of slight effect upon business combinations, and few cases were brought to trial. In 1904 and 1905, the court made a severe application of the law in cases involving the Addyston Pipe Company and the Northern Securities Company, the court holding that these companies had the effect of a restraint upon competition and trade between the States. In 1911, the court ordered the dissolution of two of the most powerful trusts ever formed, the Standard Oil Company and the American Tobacco Company, on the ground that these combinations caused undue and unreasonable restraint of trade. These decisions constituted epoch-marking interpretations of the Sherman Act by drawing a line of difference between reasonable and unreasonable, or due and undue restraint of trade. Previously it had been assumed that all restraint of trade was illegal, but these decisions pointed out that a standard of reason must be applied in each separate case to the acts of a business combination. In any new case presented to the court, it became therefore necessary for the court to determine as a matter of commercial fact whether the acts of the business combination under question were reasonable or unreasonable restraint of trade. The looseness of this "rule of reason" left business men with the feeling that they were conducting their business under a régime of great uncertainty.

Business men could not make intelligent guesses as to what the court's notion of reasonable restraint might be.

One very important question was whether mere size itself, if great enough, might be declared monopolistic and unreasonable restraint of trade. The Supreme Court gave its opinion on that issue in 1915 in a decision favorable to the United States Steel Corporation, where it was declared: "We dismiss once and for all the question of the mere volume or bigness of business. The question before us is not how much business was done, or how large the company that did it. The vital question is: 'How was the business, whether big or little, done? Was it, in the test of the Supreme Court, done without prejudicing the public interests by unduly restricting or unduly obstructing trade? The question is one of undue restriction or obstruction, and not one of volume of trade.'" In a subsequent decision on the same corporation, rendered March 1, 1920, the Supreme Court found the steel corporation not guilty of unreasonable restraint of competition and trade. The government attorneys who were prosecuting the corporation were unable to find any independent steel companies who were of the opinion that the trade practices or price policies of the company were unfair, and not a single independent company wanted to testify against the United States Steel Corporation. The Court reëmphasized its position in the dictum that, "The law does not make mere size an offense, or the existence of unexerted power an offense." The emphatic ring of these court opinions is somewhat weakened, and a measure of doubt raised, by a decision in 1920 dissolving a holding company known as the Reading Company. The court endorsed the charge that the company had secured "dominating control" of certain railroad and coal properties not by "superior and enterprising management," but by "deliberate calculated purchase for control," and held "that such power, so obtained, regardless of the use made of it, constitutes a menace to and an undue restraint upon interstate commerce within the meaning of the anti-trust act, has been frequently held by this court."

The Federal Trade Commission Act and the Clayton Act were enacted in 1914. The most significant feature of these enactments is the creation of a commission to investigate trade practices and competition policies and to apply the principles of government control of business in a flexible and constructive manner. The Commission is empowered to prevent unfair competition among business concerns, and in case a corporation fails to obey the Commission's order, it may appeal to a Federal circuit court of appeals for an enforcing order. It may conduct investigations from time to time into the "organization, business conduct, practices and management" of corporations, and may require corporations to submit reports covering information about their business, and to maintain uniform cost accounting systems, open to the scrutiny of the Commission. The Commission, moreover, is authorized to inform itself as to whether corporations obey the decrees of the court under the anti-trust acts, and to report the facts to the Attorney-General. It is em-

powered to make investigations to discover violations of the anti-trust acts, and to make recommendations for the reform of any corporations found to be violating the law, "in order that the corporation may thereafter maintain its organization, management, and conduct of business in accordance with law." The Commission may utilize the power of publicity as a means of controlling the policies of corporations. It may make investigations of foreign trade, and may secure information in foreign countries bearing upon trade combinations of the United States. It is an administrative body for the application of the provisions contained in the Clayton Act. The Commission has cleared the air for business men a great deal by drawing up and publishing lists of fair and unfair practices of competition, so that business men may know with some definiteness what they will, and what they will not, be prosecuted for.

The Clayton Act proceeds to define two of the most objectionable forms of unfair competition, namely, price discriminations and "tying arrangements," i.e., such arrangements as requiring merchants to bind themselves to sell at certain prices or to buy exclusively from certain dealers. These types of competition are specifically branded as unfair and illegal, and it is the duty of the Federal Trade Commission to prevent business concerns from indulging in them. In addition, the Commission is given a blanket authority to prevent any and all forms of unfair competition. Also, the act forbids the formation of holding companies or of interlocking directorates where the result may be to substantially lessen competition or to restrain trade or to tend to create a monopoly, and it is the duty of the Federal Trade Commission to see that these provisions are enforced. The acts of 1914 are a broad constructive move in the direction of guiding business instead of merely punishing it; of making clear what is legal and what is not; and of coöperating with business toward the end of securing business methods which are sound from the standpoint of public policy and in accord with the law.

The fundamental purposes in the government attitude toward business combination and business methods have not always been clear and definite. One general purpose has been to maintain and safeguard competitive methods in business. The decrees of the courts have often defined their purpose as being to "restore competitive conditions," and the laws that have been passed have announced their objective as the prevention of restraints upon competition. But the competition which is to be preserved is not a completely independent and unguided competition; rather, it is a competition which is required to keep within certain bounds of "fairness." It is a competition, moreover, which may be subject to some restraint and suppression by business combinations, provided only that such restraint is not, in the view of the court, "unreasonable." And the new competition allows for a substantial measure of coöperation between competing business units. The vast extension of organizations such as trade associations is a move in the nature of

coöperation between the several business units in the various lines of trade. Coöperation is the life of trade. "Only by coöperation can the enormous wastes of competition be avoided." Coöperation is not the antithesis of competition, but the supplement, and an invaluable supplement, in the successful organization of modern industry and trade. The element of coöperation is encouraged by the government in the railroads of the country, under the supervision of the Interstate Commerce Commission. It needs to be more definitely approved for industry and trade in general; and clear definitions of fair and unfair, reasonable and unreasonable coöperation should be formulated. Coöperation has been legalized by the terms of the Webb Act for corporations entering into foreign trade, and under the terms of the Edge Act for banking companies engaged in the handling of investments and credits for the financing of foreign trade. Misguided coöperation would of course lead to forms of monopoly which would be undesirable. In both the coal industry and the meat packing industry it has of late been seriously proposed to add to existing provisions for government regulation to the end that competition and coöperation in those industries may be properly balanced. Government control should recognize the importance of properly blending the principles of competition and coöperation in economic organization.

In the past, a primary purpose of anti-trust legislation and its administration frequently has been the prevention of business from growing too large. The popular philosophy of business at the time of the enactment of the Sherman Act in 1890 considered big business dangerous and menacing because of its very bigness. The provisions of the Clayton Act against holding companies and interlocking directorates are an expression of the same fear of large industrial and commercial power. The Supreme Court has in some recent decisions declared that mere size is not in itself illegal, but doubt as to what is definitely meant by such a declaration is raised by such a judicial attitude as was taken in 1914 by a Federal district court in decreeing the dissolution of the International Harvester Company. In part, that decision stated, "There is no limit under the American law to which a business may not independently grow, and even a combination of two or more businesses, if it does not unreasonably restrain trade, is not illegal; but it is the combination which unreasonably restrains trade that is illegal, and if the parties in controversy have 80 or 85 per cent of the American business, and by the combination of the companies all competition is eliminated between the constituent parts of the combination, then it is in restraint of trade within the meaning of the statute, under all of the decisions." This comes close to declaring that the company unreasonably restrains trade because of its very bigness. Does size itself constitute unreasonable restraint? In the decision of the Supreme Court in 1920 dissolving the Reading Company, it was the "dominating control" of the company, even though it were in the form of "unexerted power," which figured largely in the logic of the decision. The

doubtful attitude toward bigness is further revealed in a statement by the chairman of the Federal Trade Commission made in 1918 that, "The principal unsettled question remaining appears to be whether a monopolistic combination with the power to crush its competitors is not against public policy and contrary to the law, even though it were not shown to have exerted that power." And the chairman expresses his personal conviction that "In ordinary industry and trade, however, the maximum social advantage is not in concentration and unitary organization, but rather in the competition of numerous efficient private enterprises."⁶ It at least seems certain that in any cases where combination is allowed to attain so great a size as to amount to private monopoly, rigid government control similar to that provided by the Interstate Commerce Commission will be applied.

The history of efforts at business control for more than thirty years teaches emphatically that large business establishments are inevitable in the present economic period. Business units of sufficient size to realize the economies of large scale operation are a natural outcome of the economic system based upon modern science and technology. Economic evolution and social progress alike acknowledge a place for the large-scale business establishment. Decrees of dissolution made by the courts have proved in large measure futile. Communities of interest, holdings of stock in various corporations by friendly parties, secret understandings and concert of policy spring up in one way and another. It often has been doubted whether "the mere dissolution of industrial combinations accomplishes anything."⁷ The words of Van Hise seem thoroughly justified, "Concentration and coöperation in industry in order to secure efficiency are a world-wide movement. The United States cannot resist it." As fast as one form of combination has been attacked by the courts, another form has been invented. The pool gave way to the trust, the trust to the holding company, and the holding company often to the amalgamation, the merger or the community of interest. Control of business methods, of forms of coöperation and competition, and condemnation of evil business practices have met with a reasonable measure of success; but the result of attacks on mere size has been that, "Notwithstanding all the law against agreements in restraint of trade, the present generation has seen the greatest movement toward consolidation which is recorded in economic history."⁸ It is significant that Great Britain has during and since the war given direct governmental encouragement to the organization of business on a comprehensive and adequate scale. The trouble with the attitude of the past has been fundamentally that people were unable to discern the psychological forces which were working in the direction of large business organizations. The development of the resources of the American continent,

⁶ W. B. Colver, *American Problems of Reconstruction*, edited by E. M. Friedman, Chapter X.

⁷ See A. A. Young, *Journal of Political Economy*, pp. 204-219, 430-431.

⁸ Bruce Wyman, *Control of the Market*, p. 142.

the possibilities in the utilization of modern inventions and scientific discoveries, the economies and advantages to be realized by big undertakings, the enjoyment of economic power that could be gained by those who succeeded in large business organization, the achievements which would be a tribute to mammoth creative ability,—all these were considerations which fired the imaginations of men of genius. The last generation was endowed with not a few men of rare and extraordinary capacities, and the opportunities in the economic world which stretched out before them set loose their unparalleled energies. Men in whom the impulses to domination, constructiveness, possession, fame, power, and creative thought were highly developed, were stimulated to their highest endeavors by the challenge of economic circumstances. People and governments made the mistake of supposing that this titanic psychological energy could be suppressed or abolished by the enactment of a law or a paper dissolution by the courts. Great human energies were operating in full force, and when they were balked at one point, they found an outlet at other points. The human energies of men could not be suppressed; they could, however, be disciplined. They could be guided, directed, and brought into the service of the economic needs of the community. And, of late, the effort of business control along these lines is a truer recognition of the psychology of business combination, and for that reason has a sounder promise of success.

The possibility of making over the forms of expression which will give satisfaction to the motives of great captains of industry is difficult to measure. New standards of business honor, new standards of business ethics, new standards of business success, gradually turn the emphasis away from mere money-getting or individualistic attainment toward economic statesmanship and constructive public achievement. There is much ground for believing that the following statement of the late George W. Perkins is a fair description of the movement of the times: "The individualistic period in which we have been living . . . quickly brought great fortunes to individuals. Money-making has been the one all-absorbing occupation in this country for the last forty years. . . . On the whole, the individualistic age has not been a success, either for the individual, for the community in which he has lived, or for the nation. This period is passing away. . . . To my mind there is nothing in the signs of the times so certain as this. I believe the sooner the man of the future understands this, accepts it, and prepares to shape his own course accordingly, the more successful his career will be, the better off his country will be, and the happier he and every one else will be. . . . Our only decoration—the almighty dollar—is not as highly prized as it used to be. The man of exceptional ability, of more than ordinary talent, will hereafter look for his rewards, for his honors, not in one direction but in two—first and foremost in some public work accomplished, and second in wealth acquired. . . . In my judgment, the fashion of acquiring wealth simply for the sake of possessing it has about reached its greatest height, and the fashion of performing public service

for the sake of its performance is coming into vogue.”⁹ To the degree that this revaluation and rediscipline of motives takes place, the economic organization of the country will increase the measure of human well-being which prevails, and private initiative in public achievement will characterize American business life.

Governmental Control of Labor.—Labor is so vital a part of productive organization that the influence of government control over it becomes of importance. Government control of the laborers of the railroads has already been described in some of its phases. Compulsory investigation of disputes, trusting to public opinion for enforcement of decisions, is the established mode of procedure for the railroads. The State of Kansas has attracted much attention by the formation of a State Court of Industrial Relations, to settle labor disputes in all industries of vital public concern, with powers not merely of compulsory investigation, but also of compulsory enforcement of the decision. Both the railroad method and the Kansas method arouse the bitter antagonism of organized labor, because it is felt that the element of compulsion will prove to be an entering wedge for forcing men to work against their will and thus for involuntary servitude. The fundamental principle in both cases is the uninterrupted operation of businesses which are of indispensable and vital public service. The opposition of labor caused Congress to eliminate a specific anti-strike clause from the Esch-Cummins railroad bill, and an adverse Supreme Court decision has nullified the principle of the Kansas Act.¹⁰ Labor’s attitude also received much attention in a report made by a special industrial commission appointed by President Wilson in 1919 for the purpose of working out an industrial reconstruction program. The commission contained seventeen members, persons of experience and distinction; and great importance attaches to their belief that the general application of compulsion in the settlement of industrial disputes is inexpedient and unwise, with the parties to industry in their present mood; and that the best mode of maintaining industrial peace and coöperation lies in the direction of a nationwide organization of arbitration and mediation machinery, with regional divisions, exercising the right of investigation and publicity in industrial disputes, but not clothed with compulsory powers to forbid strikes. In the big meat packing industries, the government established during the war a method of federal control of labor relations under the direction of a federal judge, Judge Alschuler. His powers were extended following the war, until the autumn of 1921, and the Secretaries of Commerce, of Labor, and of Agriculture then approved the termination of this federal control upon the understanding that the meat packers would establish forms of employee representation and joint conference between employers and employees for the adjustment of industrial relations. Government control, moreover, has frequently taken the form of injunctions forbidding laborers to strike,

⁹ E. M. Friedman, *American Problems of Reconstruction*, pp. 50-51.

¹⁰ See above, p. 439.

or to picket, or to boycott, or to engage in some other practice held to be objectionable. The element of compulsion in the injunction arouses extreme bitterness on the part of laborers, and they feel almost universally that the injunction deprives them of their freedom and rights as American citizens and workingmen. The injunction is a measure which ought to be used only in the last resort, as a means of providing indispensable business service to the public or of protecting just rights of employers. Organized labor secured, as a means of protecting itself from court restrictions, the insertion in the Clayton Act of a clause which stated that "the labor of a human being is not a commodity or article of commerce," and that labor organizations are lawful under the anti-trust acts, and may not be restrained from "lawfully carrying out the legitimate objects thereof." Labor unions entertained the hope that this section of the Clayton Act would give them a new status of immunity from interference by the courts, but subsequent judicial decisions indicate that the Clayton Act did not materially alter or improve the status of labor organizations. The act empowers them merely to lawfully carry out legitimate objects, and it remains for the courts to give their own interpretation to the words lawful and legitimate. The act seems in no substantial degree to have mitigated the power of the courts, through injunctions or decisions, to control the practices of labor organizations.

Experience therefore indicates that the situation of the present day calls for the minimum of government compulsion which is necessary to protect vital interests of the public, and for the creation under government auspices of machinery for nationwide voluntary arbitration and conciliation. The forcible suppression of the mass aspirations of laborers by undue government control would be fraught with dangerous psychological results. Where labor unrest reflects grievances, and where the hopes of groups of workers are aroused, a policy of suppression can have no other effect than to foster unnecessary radicalism, bring about a balked industrial morale, and stimulate sulkiness, sabotage, and restriction of production. The psychology of the mass of workers requires not merely a closing of certain channels of human expression which society deems dangerous, but also the opening of other channels of expression that are not dangerous. When bad expressions of basic labor motives have to be stifled, good expressions for the same energies need to be created.

Reform.—In a general way, reform refers to those efforts to improve human affairs which take their initiative from leaders who are desirous of helping the mass of their fellowmen. Reform is not primarily a democratic method because it does not exact responsible effort and alert self-expression from the people who are to benefit most by it. Reform extends a helping hand from the top down more than it builds a self-earned and self-created improvement through the democratic organization of people from the bottom up. Society abounds with social students, public-spirited citizens, altruistic business men, or political

leaders anxious to serve their fellowmen, who are continually busy effecting reforms for the good of society.

Most reform efforts of the present day are directed toward economic conditions, and a great proportion of them seek their ends through the medium of legislation. Labor legislation is a leading type of reform, and numerous organizations exist for the furtherance of such legislation, conspicuous among which is the American Association for Labor Legislation. Labor reforms include laws establishing a minimum wage; prohibiting child labor; protecting women in industry; assuring workmen's compensation and insurance, accident prevention, fire protection and sanitary working conditions; regulating hours of labor and night work; maintaining factory inspection; requiring proper working conditions; supplying adequate housing; restricting the immigration of alien labor; organizing Americanization; providing employment agencies; and endeavoring to help the worker by every device conceivable to the mind of a reformer.

There are numerous societies and associations whose function is to spread publicity in favor of some reform, or to bring pressure to bear on legislators, or to bring direct help to people in trouble. These societies include such different agencies as the Consumers' League, the Federal Council of the Churches of Christ in America, the American Child Hygiene Association, the American Home Economics Association, the Child Welfare League of America, the League for Industrial Democracy, the National Conference of Social Work, the National Women's Trade Union League, the Russell Sage Foundation and other foundations, and bureaus of industrial, social or economic research. Almost every field of economics has its set of leagues and societies devoted to reform.

The work of reformers is of genuine service, for it prevents in large measure low standards of human treatment in the economic world. It alleviates suffering, and it arouses a dormant public to face industrial wrongs and provide remedies. The body of welfare legislation, of uplift work, and of reform organization has raised the level of comfort and happiness in the nation and deserves high recognition. It is important, however, to note the limits within which most reforms take effect. Reform is not a unified comprehensive program, but is a bundle of particularistic programs, each sponsored by certain groups of individuals who devote their energies to the accomplishment of miscellaneous or single reform acts. In the meantime, the economic institutions remain fundamentally unchanged, and in their normal functioning result in a fairly steady output of the troubles, distresses, injuries and wrongs which reformers can only lighten or alleviate. A great deal of reform seeks to extend the helping hand, but does not reshape the institutions of the economic order in such ways as to insure the institutional elimination of the difficulties. Reform is often subject to the defects common to all welfare work. It is in the nature of public benevolence rather than of self-expression. As long as the status, powers and rights of the various classes in economic organization remain substantially unchanged,

the reform movement necessarily works near the surface of things. It is useful and indispensable, but faces certain limits of effectiveness.

Moreover, it is true of a large class of reforms that they rest upon an inadequate view of social psychology. This class of reforms aims to give pleasure, safety, comfort, and happiness to social groups. Trouble is to be abolished, danger and risk eliminated, war and struggle ended, minimums of food and luxuries guaranteed, poverty wiped out, fear, oppression and autocracy destroyed. The new age that this type of reform looks forward to is one of contentment, leisure, gentleness, kindness, and security. All of this is to be a gift, coming from reform leagues and societies, or from acts of legislation. But such a state of peace and piety and plenty offers no satisfaction to many of the basic wants of human beings. Men and women do not want gifts of pleasure; they want opportunities to win economic and social advance by the assertion of their own human powers. Men and women need a cause which they can be devoted to, and through loyalty to the cause, through struggle for the cause, through self-sacrifice and heroism and hazard for the cause, they desire to win and create their own betterment. The victories and rewards which come from self-assertion are real. Men need challenges to invent new social and economic principles and measures, and need opportunities to hew out progress by the work of their own hands. The society often portrayed by a certain class of reformers is a complacent haven of refuge, but men cannot live the strenuous life in such a society, and anything short of the strenuous life cannot satisfy the deepest demands of human nature. Reform movements of this kind largely ignore the fundamental human cravings for zest, risk, responsibility, self-achievement, group loyalty, resourcefulness, sacrifice, domination, power, struggle, conquest. Of course the sounder reform movements avoid the mistaken social psychology of ease and comfort, but it is important that the bulk of reform effort should rest upon a correct interpretation of human nature. Reform in the deepest sense of the word should mean not merely a gift from society to needy groups, but an organization of opportunity for self-achievement, and for group advancement by the creative effort of all members of the group.

The spirit of reform is a splendid reflection of the genuine feeling of human kindness, and the fruitage of such a spirit certainly commands admiration. Not a few groups in society are deficient in the virile instincts and the powers of self-assertion and achievement, and the protecting care of society over them is an indication of a high state of civilization. There is no disparagement of the inner value of reforms as a whole, in pointing out some of the limits under which certain classes of reform have worked in the past or in indicating the misleading notions of human nature which underlie certain reform movements. The gist of these observations is that a reconstruction of reform programs that reckoned more positively with the limits of reform effort and that recognized the principles of modern social psychology would greatly increase their power and usefulness.

Public Opinion and Public Control.—References have been made to the power of public opinion as a means of effecting fair business practices under the administration of the Federal Trade Commission and as a means of enforcing official decisions bearing upon labor disputes. Public opinion is commonly thought of as an opinion which is right. Pitiless publicity is often suggested as a measure for bringing about adequate remedies of economic wrongs and troubles. And it is ordinarily observed that an economic policy cannot long endure or a method of government control prove effective unless it can secure the support of public opinion. It is appropriate, therefore, to give some analysis to the function and application of public opinion in economic matters.

First of all, public opinion is scarcely competent to pass upon technical economic issues. On matters of business ethics or of labor grievances, public opinion is swayed primarily by head lines, and only very remotely by the body of technical facts which bear upon the issue. For instance, a federal judge who dissolved a corporation on the basis of what he had read about it in the newspapers, or an arbitrator who decided a wage dispute from his knowledge of the press headlines, would be obviously derelict in his duties because he would be acting without anything like adequate evidence. Yet the judge or the arbitrator would be acting upon exactly the same evidence as serves to form public opinion. The broad spirit of public opinion as it might relate to the rightness or wrongness of profiteering or of a certain standard of living as a basis for wage adjustments, would have real value, but the determination in any particular case of what per cent of profit is profiteering would rest upon a technical analysis of capitalization, invested capital and other matters of fact, and the determination of a living wage would rest upon a technical analysis of statistics of prices and cost of living, of family budgets, and similar facts. Clearly, the determination and analysis and interpretation of such evidence is beyond the competence of public opinion.

From another standpoint, public opinion is not allowed to form itself freely, without bias or misbalanced information. The Federal Trade Commission gave publicity to its findings about the profits of the meat packers, hoping that public opinion would eliminate profiteering. The meat packers countered by running expensive advertising in the newspapers and spreading broadcast pamphlets to inform the public that their profit amounted only to a small fraction of one cent out of every dollar of sales. As a result, the publicity of the Federal Trade Commission was neutralized and public opinion was confused and ineffective. Business concerns or labor organizations which have interests at stake conceive it to be their right and duty to use every effort to shape public opinion in the direction which they desire. Hence there has developed the modern art of propaganda. People who once doubted the power of propaganda had those doubts removed during the war by the obvious effects of war propaganda. Since the war, nearly every large corporation has a publicity official whose duty it is to spread broadcast

information of a nature to win the good will of the public; and labor organizations from time to time have announced the appropriation of huge sums to be devoted to arousing a sympathetic public opinion. Publicity in such cases is a refined name for propaganda. The public stands between a cross-fire of propaganda, and it would be amazing if the perfectly human public did not reflect this situation in its opinion on important matters. Propaganda takes advantage of every known device of irrational appeal and unconscious suggestion; and the value of public opinion as a help in settling baffling problems has to be discounted to the extent that propaganda is misleading.

Public opinion as an arbiter of disputes between labor and capital is subject to all these limitations in degrees which vary from case to case. Doubtless in most labor disputes the superior power of propaganda lies with employers. Often employers carry large advertisements in the daily press during a time of strike, to arouse public opinion in their behalf. More important than this, the whole social philosophy and economic background of newspaper managers and editors tends to make them unconsciously the allies in sympathy and reasoning with employers and naturally their headlines and editorials tend to reflect their fundamental and unconscious bias. Charges are often made that newspapers are intimidated by business men who patronize their advertising columns into publishing only news favorable to their interests, but such charges are rarely proved by concrete evidence. Beyond these considerations lies the fact that in the very nature of the case the primary concern of the public is peace and quiet, order and smoothness. The public as a rule would rather have industrial peace at almost any price than arouse itself to a study of troublesome conditions and the problems of industrial reconstruction. The public wants to be let alone; hence it is ordinarily the ally of the *status quo* in industry. Labor comes with the sword and attacks the *status quo*. Most labor demands are for a change. Labor is on the aggressive and just as in international warfare the nation which starts the trouble alienates the sympathy of neutrals, so in industrial disputes, the group which starts the dispute and takes the initiative tends to alienate the sympathy of neutral public opinion. Neutral opinion usually sympathizes with whoever is on the defensive and turns against whoever is on the offensive. In most industrial disputes, capital is on the defensive and labor on the offensive. It results therefore that the weight of public opinion tends to the maintenance of things as they are. It is marked more by a leaning toward habit, custom and inertia than toward newness of thinking, alteration of conditions, and change of policy. From labor's standpoint, the public wants peace more than justice, and industrial quiet more than the active righting of industrial wrongs. These limits to the value of public opinion in industrial disputes need to be recognized when opinion is assigned the rôle of arbiter between labor and capital.

This account of the case should not be allowed to belittle unduly the true importance of public opinion in the rôle which it is competent

to play. The public is the injured party in industrial struggles and its determination to protect itself from unjust interruption of business service is a worthy one. The ideas of the common man deserve deep respect, and there is no intention here to repudiate public opinion as a useful force in the control of modern business. But the limits of public opinion need to be taken into account; its natural lethargy and inertia recognized; its vulnerability to the skilled presentation of propaganda understood; and its unconscious social and economic bias properly measured. Public opinion on economic issues needs constant education and leadership, needs to be aroused by responsible authorities and informed by agencies which are interested in true publicity rather than mere propaganda. The estimate of public opinion by Viscount James Bryce in his work on *Modern Democracies* states the matter in admirable proportions: "The value of public opinion depends on the extent to which it is created by that small number of thinking men who possess knowledge and the gift of initiative, and on the extent to which the larger body, who have no initiative but a shrewd judgment, cooperate in diffusing sound and temperate views through the community, influencing that still larger mass who, deficient in knowledge and in active interest, follow the lead given to them. . . . Two dangers threaten . . . all modern democracies. One is the tendency to allow self-interest to grasp the machinery of government and turn that machinery to its ignoble ends. The other is the irresponsible power wielded by those who supply the people with the materials they need for judging men and measures. That dissemination by the printed word of untruths and fallacies and incitements to violence which we have learned to call propaganda has become a more potent influence among the masses in large countries than the demagogue ever was in the small peoples of former days. To combat these dangers more insight and sympathy, as well as more energy and patriotism, are needed than the so-called upper and educated classes have hitherto displayed." ¹¹

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¹¹ Pp. 456-457, 459-460. See Chapters XV and LXVII.

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CHAPTER XXXVII

ECONOMIC RADICALISM

There exists in every economic organization a group of people who, because of certain characteristics which are more or less common to them, come to be looked upon by the rest of the economic organization as "radicals." Some of the most noticeable characteristics of the members of radical groups may be outlined briefly as follows: (1) The evils and faults of society look bigger to them than to the average person; wrongs tower into outrages, economic conditions cry out with indecencies, and the troubles and wants of the less fortunate classes of society loom up into atrocious evils and glaring crimes against humanity. (2) Radicals as a rule are more impatient for correction of economic faults than the average person. Delay is in their eyes criminal procrastination, and the faults of society require quick and effective action. (3) Radicals as a group place great stress upon the right of freedom of thought, freedom of the press, freedom of speech, and freedom of agitation. The vocabulary of radicalism emphasizes and reemphasizes the word freedom from first to last,—a perfectly natural rationalization of their burning desire to be immune from restraint in preaching and spreading the doctrines of radicalism. (4) Radicals demand changes which are more drastic and far-reaching than appeal to the ordinary man. They look upon mild reforms and ordinary reconstruction as mere patchwork; what they want is a transformation of society, a remaking of fundamentals, a complete remodeling of economic structure. (5) Radicals give every appearance of feelings of bitterness and hate toward classes who stand in their way. They dwell upon pictures of the class war, and the class struggle, and anticipate the destruction of a class of oppressors. For the mass of people, for the labor groups especially, they evince genuine love and sympathy, and this is all the stronger reason why they show hatred of oppressors. (6) They look forward to an organization of economic society in which group action shall predominate, and collective and coöperative institutions shall supersede private business. Political groups and non-political coöperative groups compose the anticipated structure of their rebuilt economic society. (7) Radicals place great faith in the willingness of the individual under the proposed régime to subordinate self-motives to social motives, and to abandon desires for selfish acquisition or aggrandizement in order to make way for desires of public service and the common good. It is prophesied that under the new régime public-spiritedness will be paramount.

These characteristics of radicals naturally set them off as unique and queer, and as different and dangerous. Some people feel that the only adequate treatment for such specimens of humanity is to jail them, lynch them, shoot them, or deport them. There come from time to time waves of popular feeling when this attitude takes possession of nearly the whole of society. Such an outburst of public feeling came during the years immediately following the World War. Even during these waves of feeling, however, there are certain groups which take the stand that radical doctrines are after all not harmful if they are treated intelligently, and that if radicalism is empty and has no basis in fact, it will die a natural death, or will draw an insignificant band of followers, while if it has any basis in fact, society can quietly and in an orderly manner correct the wrongs, and thereby draw the sting out of radicalism. In ordinary times, the group of people who act upon this interpretation of the radical movement are usually the predominant group.

There are distinguishable shades or degrees of radicalism. Some are moderate and patient, and although they believe in drastic changes, they are willing to take time in reaching them. Economic evolution is their principle of action. Others speak of evolutionary revolution, indicating that they want revolutionary changes in economic structure, and although they will proceed by law and order to secure the changes, yet at the same time they will hurry up the process of evolution, and speed the day of drastic transformation with all their might and main. Others plan for a great upheaval, for a bloodless revolution, for the seizure of all things by the emancipated classes and the surrender of the oppressors. And still others deliberately calculate on force and violence as the means of overthrow of the capitalist power and the rule of the working classes everywhere.

Radicalism has not merely its various shades and degrees, but also its various parties, or schools of thought. Radicalism is synonymous to most people with socialism, but socialism and radicalism have so many divisions and parties that it is difficult to give the common essence of them all. The case is somewhat as in religion, where a great number of denominations, factions and groups appear, and the interpretation of religion made by each is different from that made by any other. Hence, it is more illuminating than a definition to state that all branches of radicalism partake in some shade and degree of the main characteristics of radicalism which were drawn up at the beginning of this section. Some of the main branches and their main individual peculiarities will be listed below.

1. *State socialism* looks toward state ownership and operation of the main industries of the country by a political government which has eliminated the capitalist classes from power. The German experiments in state ownership and operation before the World War were state capitalism rather than state socialism in the strict sense of the term. State capitalism is often considered by socialists as a stepping-stone toward state socialism. An important part of the program of the American

Socialist Party has been state ownership and operation of leading industries. In recent years American socialism has shown a drift toward the principles of guild socialism, which are described in later paragraphs. The experiments of North Dakota under the Non-Partisan League with state-owned grain elevators, state banks, and the like had the salient characteristics of state socialism. The construction of the Panama Canal has often been cited by socialists as proof of the practicability of state enterprises. However, none of these examples constituted 100 per cent state socialism, for the reason that the government itself remained capitalistic in its fundamental nature.

2. *Guild socialism* proposes a dual organization of politics and industry, under which each branch of industry would govern its own productive activity through the organization of its workers, while coördination of the various branches of industry would be effected through the federative organizations of the various industries, or through the control of the political state, or through a combination of both these methods. The workers would elect committees and councils to assume the leadership in production, and each branch of industry would thus put the control and operation of its own production in the hands of its workers. The state, representing more particularly consumers, would be a mediating and harmonizing agency, to effect proper adjustments between the several producers' organizations, and to protect the interests of society as a whole. The proposed Plumb plan for operation of the American railroads comes the nearest to the principles of Guild socialism of any project that is well known to this country, but the main stronghold of Guild socialism is among certain influential intellectual groups of Great Britain.

3. *Marxian socialism* refers to socialistic doctrines based upon the writings of a great German economist of the nineteenth century, Karl Marx. His most famous work, *Das Kapital*, has often been called the socialist "bible." Its elaborate attempt at a scientific diagnosis of capitalistic society has led many to refer to Marxian socialism as "scientific" socialism. Two of the most important doctrines of Marx are the *surplus value theory* and the *class struggle theory*. The surplus value theory has been defined in a previous chapter dealing with value theories. Its emphasis upon the tendency of capital to appropriate the product of labor over and above that remuneration necessary to provide the bare means of subsistence has long furnished inspiration for those socialistic leaders who hold that capitalism inevitably means the *exploitation of the proletariat*. The class struggle theory has come to be widely known under the heading of the economic or materialistic interpretation of history. Marx taught that economic forces would in the long run be the undoing of capitalism itself, for concentration in industry would steadily grow greater and greater, and this would ever more widely divide workers from capitalists. A class feeling would grow sharper and sharper, the greediness of the big capitalists would bring increasing misery to the workers, and the class war would eventuate. In the class

war the workers would unite and strip the capitalist exploiters of their property and decree that land and capital should be owned in common. The militant character of Marxian doctrine has caused it to be referred to frequently as *revolutionary socialism*.

4. *Utopian socialism*, as the name implies, refers to the somewhat idealistic proposals of many reformers. Prominent among this group of socialists have been Saint-Simon, Fourier, Robert Owen, and Bellamy. Many community experiments were tried in the collective ownership of property, but practical difficulties brought such experiments to an unsuccessful close. The most important permanent influence of the Utopian socialists was the coöperative movement among consumers.

5. *Parliamentary socialism* refers not so much to a separate school of thought as to a distinct method of bringing socialism about. Parliamentary tactics are aimed not at sudden revolution but at gradual evolution. They consist largely of reform laws passed by parliaments, congresses, and legislatures. The Fabian socialists of England are prominent advocates of such tactics, but almost every type of socialism utilizes some measure of parliamentary strategy. In the milder sense of the word, every social reformer who favors industrial and social legislation is a parliamentary socialist. Minimum wage and child labor legislation belongs within this category.

6. *Syndicalism* is a branch of socialism which exalts the organization of the producers in each line of industry as the supreme form of economic institution. Instead of using parliamentary tactics as a means to attaining power, syndicalists would use trade union tactics. Syndicalists believe in using trade unions as agencies of direct action by industrial methods. Direct action includes sabotage, i.e., spoiling machinery or product as a means of struggle against employers; boycotts and labels; and most important of all, strikes. The day is anticipated when the workers in one big union will declare the *General Strike* against the whole capitalist structure, and with the overturn of capitalism will win control of all industry. The stronghold of syndicalism is in the French labor movement, but a group of American syndicalists have sprung up independently, under the title of the Industrial Workers of the World. Their strength as an organization dwindled greatly in America during and following the war, but men imbued with their doctrines penetrated the organizations of ordinary trade unions in a great many cases, although the extent of this penetration is practically impossible to estimate with any degree of accuracy.

7. *Communism* is similar to other forms of socialism in its proposals for the organization of production, but differs sharply in its proposals for distribution of consumers' goods. Communism pools the earnings and ownings of people, and divides the common fund on some such basis as, for example, "to each according to his needs." Equality of income is more closely reached under communism than under any other form of socialism.

8. *The Soviet* is the name given to the form of political machinery

which has been established in the Russian socialistic experiment. The socialism which has been tried out in Russia has been a peculiar combination of some of the main principles of Karl Marx, of communism among peasants and workers, of opportunistic tactics to meet military and industrial crises, and of the dictatorship of a small minority of the proletariat over the bulk of the population. Bolshevism is the creed of the political party which is in power, and has the same relation to the Soviet as the platform of the party in power in a democratic state has to the general political organization of democracy. The effort to install communism encountered determined resistance from the Russian peasants and from many groups of workmen and capitalists. In the face of such resistance, the leaders of the Bolshevik party made numerous concessions for the sake of expediency. These concessions were in the nature of a compromise with capitalism, and have been called the NEP, or New Economic Policy. Soviet operation of some industries exists side by side with capitalistic operation of others. Particularly, what amounts to private ownership of land has been conceded to the peasants. The Russian experiment has been marked by periods of violence on both sides. Its frank hostility to capitalism everywhere has aroused the enmity of outside countries. It would be fruitless to prejudge the experiment. It is still in the stages of experimentation, struggling to survive in spite of the antagonism of all other great industrial countries.

The Economic Difficulties Confronting Socialism.—The arguments of the socialist commonly arouse more emotional excitement than rational analysis. They stir up a great deal of impassioned vituperation but only a small amount of careful reflection. Economic criticism should endeavor to avoid the pitfalls of mere denunciation of a project. It should endeavor to weigh the favorable and unfavorable considerations as evenly as possible. And it should not undertake to rush into a premature verdict that the project will or will not be a failure.

Approaching the problem with these things in mind, we cannot lay down a final conclusion that socialism will or will not succeed. The most that we can do is to describe on the one hand the economic difficulties confronting socialism, and on the other hand the socialistic methods for combating these difficulties. Whether or not the difficulties will prove to be insurmountable is a question which must be left to the future to decide.

The discussion may be grouped under four main headings, namely, the difficulties of *production*, the difficulties of *consumption*, the difficulties of *distribution*, and the difficulties of *exchange*. These headings, it will be noted, correspond with the four main divisions of the subject of economics.

The Difficulties of Socialistic Production.—The size of the socialistic organization encounters the law of diminishing returns. In nearly all branches of economic activity there is a limit to the size of business unit which can attain maximum efficiency. This limit exists even in lines of industry where standardized mechanical processes predominate, but

it is especially severe in lines of industry where the human element predominates. Every increase in size beyond the point of maximum efficiency results in diminishing efficiency. The size of many private business organizations already appears to have reached the point of diminishing efficiency. But these present private organizations are quite small compared with the gigantic organization involved in a socialistic state. If the units of big business today are face to face with the principle of diminishing efficiency, how much more drastic would be the application of that principle if all business were brought under centralized administration and control. The socialistic administration of industry, which would involve consolidation and concentration far beyond anything yet known in private business, would stand in danger of being overwhelmed by the extremes of its dimensions.

Many socialists have sought to obviate the difficulties of size by advocating a decentralized administration of industry. According to such a plan, each city and town would be autonomous in control of purely local industry. Each national branch of production would be self-governed. Each trade would enjoy a kind of home rule in its management. And all branches would be harmonized by a federal form of government control at the top. The Guild socialists are prominent among the advocates of such a decentralized socialism. Whether it is possible to strike a workable balance between self-determination within each branch of industry and a loose federal sovereignty at the top is an important but unsettled problem.

Whether the administration be centralized or not, socialism faces a difficulty in its industrial discipline. Under almost every form of political administration yet experimented with, the spirit of the political agents has made political administration a byword for indifference, slacking, and the desire to get something for nothing. No form of discipline has proved workable in political large scale organization which would secure the same attention to duty and performance of responsibility as is attainable under the moderate sized private business. The capacity to hold men to their tasks, to bend their energies effectively toward productive work, and to fasten their motives and thoughts adequately upon the handling of their jobs is exercised none too satisfactorily in the moderate sized private business, where the size of the business permits direct supervision of labor and where unyielding exactions of work done for pay received are possible. Referring particularly to Guild socialism, but using words which apply equally to all socialistic programs, Alfred Marshall aptly writes, "In the present economic system, discipline is enforced in great measure automatically 'by an unseen hand.' It is often rather harsh; and its severity calls for frequent mitigation of human effort. But if automatic discipline is removed, an all-pervading authority must be invoked to check abuse in small matters as well as in large. Unless Guild organization develops some notion, of which it at present seems to have made no forecast, it may probably drift into chaos, from which relief can be found only

in a military despotism.”¹ With the abandonment of the traditions, customs and habits which now attend upon the worker's attitude toward dismissal, promotion, and efficiency, a new technique would have to be created, and a new habituation of labor psychology developed.

The discipline of leaders would be as difficult as the discipline of workers. The history of politics indicates that the qualities of character which make a man popular with the mass of voters are not always the same qualities of character which make a man an efficient executive and administrator. The glad hand, geniality, the broad smile, spectacular achievement, pull with the political machine, and similar qualities play a great part in the popular election of mayors, legislators, governors, and even of presidents. The expert, the technical specialist, the qualified executive, the trained administrator, find it next to impossible to compete in elections with the “man of the people.” Private business has the virtue of bringing men of great executive ability into positions of responsibility and power, and there is no assurance that the socialist democracy of economic control and operation would secure the same qualifications in leadership. Human nature in politics gives rise to an honest doubt as to the economic leadership of the socialistic order.

These difficulties are intensified by the fact that the average man is apathetic in his duties of citizenship. In their enthusiasm the socialists often assume that the average man is on his tiptoes, straining at the leash, ready to plunge into the responsibilities of socialistic democracy. They picture the common worker as a human being who will spring into activity as soon as socialistic democracy is declared, and who will be on duty at all times, alert and eager, taking a man's part in the conduct of economic affairs. But the average worker is an indifferent individual, and it is exceedingly difficult to sustain for any length of time his active interest in political and economic problems. Interest and action require exertion of mind and body, and the ordinary individual, after the first novelty of an undertaking is past, falls into an easy-going inertia. The direct primary has been a disappointment to most of its sponsors because voters proved too indifferent to bother going to the polls to use it. The ordinary town caucus is attended by only a handful of men, and delegates to a nominating convention enjoy the trip and are proud of the experience, but are relieved to have the pain of thinking out a compromise candidate left to a handful of inside politicians. Votes on vital economic questions under the socialistic plan would surely be cast by an active minority; elections of leaders would bring tedium and boredom; attendance at meetings would become a routine aggravation; and the tactics of controlling political interests in the economic commonwealth would permeate the system. The present intellectual equipment and training of millions of workers, their lack of experience in responsible economic citizenship, their unsteady interest in vital economic and political issues, make a dubious prospect for the economic society of socialism.

A problem of motivation underlies these questions of discipline and

¹ *Industry and Trade*, p. 600.

leadership. Will the motives upon which socialistic industry depends work? Socialists contend that the feeling of being a part of the co-operative commonwealth will stimulate loyalty and workmanship, and that by placing the premium upon group solidarity rather than upon individual selfishness, the private motives of capitalism will disappear and the public motives of socialism will triumph. This faith in motives of unselfish service rests upon the assumption that men can change their basic aspirations in a somewhat hasty fashion. The making over of motives is a very gradual process at the best, and involves the slow accumulation of folk-ways, customs, traditions, habits, and institutions. The usual socialistic doctrine takes the quick adoption of new motives for granted. It tends to overrate the speed at which a wholly new system of incentives can be institutionalized.

Socialists can offer some rather impressive arguments to prove that these difficulties would in the course of time be surmountable. In some leading city administrations, the efficiency of government seems to compare favorably with the efficiency of private corporations. Public schools achieve discipline of instructors and selection of competent leaders. Public health services seem to supplant selfish motives with genuine service motives. Municipally owned public utilities have in numerous instances demonstrated a degree of efficiency as high as that found in privately owned utilities. Coöperative societies of producers and consumers have proved their capacity to conduct business effectively. The socialists contend that if collective control of industry can be effective in these lines, it can be extended to others, and can gradually prevail in all lines of production.

The Difficulties of Socialistic Consumption.—Socialism is often conceded by its critics to be Utopian. That is to say, it is conceded to offer an ideal picture of comfort and contentment to consumers. The dreams of enjoyment, the air castles of plenty, the allurements of luxury, all afford a paradisiacal picture of consumption. This idealistic character of socialistic doctrine is suggested in the following utterance of Bertrand Russell: "The world that we must seek is a world in which the creative spirit is alive, in which life is an adventure full of joy and hope, based rather upon the impulse to construct than upon the desire to retain what we possess or to seize upon what is possessed by others. It must be a world in which affection has free play, in which love is purged of the instinct for domination, in which cruelty and envy have been dispelled by happiness and the unfettered development of all the instincts that build up life and fill it with mental delights. Such a world is possible; it waits only for men who wish to create it."

However, before such an Elysian land of delight can be attained, numerous bridges must be crossed. People must learn to make wise choices as consumers. The satisfaction of wants must be developed to a fine art. How would socialists educate the masses to new and higher standards of appreciation? One measure would be to eliminate advertising and salesmanship as it is practiced under capitalism. This tech-

nique for the guidance of consumers' choices would be obliterated. In its place might be installed a technique of publicity under the control of the state. By advertising and publicity under political auspices, the effort might be made to mold consumers' choices in very arbitrary patterns. Paternalistic control of wants and of the means toward their satisfaction might easily lead to enforced standardization of consumption. Prohibition of certain choices, compulsion of other choices, might prove to be the outcome. Certainly there is a distinct danger that this development would take place. There is a definite question as to the ability of the socialistic scheme of life to guide the choices of consumers satisfactorily.

The Difficulties of Socialistic Distribution.—Socialism as advocated by most schools of thought contemplates two drastic changes in distribution. First, it contemplates doing away with three main shares in distribution, namely, rent, profit, and interest, and the payment of all shares in the form of wages and salaries. Income for ownership would be abolished. Only income for work would be recognized. Thereby, the alleged power of exploitation in the hands of the capitalists would, it is claimed, be destroyed. Second, the distribution of wages and salaries would be on such a basis as to obliterate the glaring inequalities of fortune which characterize capitalism. Most branches of socialism do not advocate absolute equality of income, but they do advocate a much less degree of inequality than prevails under present conditions.

These basic changes would encounter difficulties of great importance. If rent, interest, and profit are to be abolished, necessarily there must be evolved some method by which people can be persuaded to improve and develop land although they can never expect to have any rights of ownership in such developments. There must be evolved some method by which adequate saving can be maintained, so as to provide a steady supply of new capital. There must be evolved some method by which state boards can apportion the supply of capital to those producers most competent to use it, in more effective fashion than the banks and the interest rate now accomplish that task. There must be evolved some method by which captains of industry can be stimulated to their best effort without the incentive of private profit. Perhaps all of these things can be done. But certainly the difficulties in the way of their accomplishment are more serious than the average socialist is willing to admit. The self-regulating influence of rent, interest, and profit in the capitalistic system is by no means perfect, but it has been adequate to create the great industrial progress of the past century. Before this regulative mechanism is discarded, we should be sure that the mechanism which is to take its place is equal to the strain to be placed upon it.

The proposal to lessen the inequalities of fortune rests upon a genuine desire to make life better for the masses. The accumulation of excessive fortunes is one of the evils of present-day capitalism. But whether the general flattening out of fortunes by socialistic methods would be effective is another question. Non-financial incentives to superior effort would

need to be stimulated far beyond their present strength. Non-pecuniary reward for strenuous endeavor would need to be developed much more than it has ever been developed in the past. If these developments could be achieved at all, they could come only as a result of a very gradual evolution in incentives and rewards. The pace at which new motives become institutionalized is exceedingly slow. Consequently, there is a serious doubt whether socialism could rely upon the new motivation as quickly as most socialists seem to anticipate.

The Difficulties of Socialistic Value and Exchange.—According to the Marxian doctrine, it would be impossible under socialism for any one to seize the surplus value created by the workers. It would be impossible for profiteers and exploiters to appropriate surplus value for their own selfish gain. Surplus value would be diffused among the workers who are alleged to have created it in the first place. This result would follow automatically from the socialistic scheme of distribution. If no one could claim rent, interest, or profit, and if the grosser inequalities of income were wiped out, obviously no one could have any hope of exploiting the workers. If critics of socialism could concede the soundness of the socialistic scheme of distribution thus far, they would then be unable to find fault with the valuation of goods. Once the income of society has been distributed, the process by which goods are valued is essentially the same, whether under a capitalistic or a socialistic society. Once the income is determined, the value process is not a serious problem. The orthodox economic theory of value would explain value under socialism as well as under capitalism. It is the determination of the shares of income before actual valuation of goods begins which holds fundamental importance. This factor has been discussed under the heading of distribution, and need not be repeated here. If the difficulties of socialistic distribution could be overcome, the difficulties of socialistic value and exchange would take care of themselves.

The marketing mechanism through which goods are exchanged would be altered by socialistic plans. The wastes of competition would be obliterated. Overlapping and duplication of effort would be eliminated. Present middlemen would be driven out. But this program of elimination of capitalistic marketing machinery must not overlook one fundamental necessity. Marketing involves the performance of certain functions. These marketing functions include the assembly of product, transportation, storage, standardization, risk taking, grading, financing, and guidance of demand. These functions would have to be performed under any economic system. If socialistic industry abolishes the old machinery for carrying out these functions, it must forthwith create new machinery of its own for carrying out the same functions. The capitalistic middleman may be abolished, but the functions which he performed cannot be. The task of building up a wholly new organization for carrying out these functions would be exceedingly difficult. There is much room for doubt whether the new mechanism would carry out the functions as efficiently as the present one.

Conclusion.—The difficulties of production, consumption, distribution and exchange are many and serious. Whether they are surmountable is a question to which we cannot give final answer, either in the affirmative or negative. But if we have in mind what these difficulties are, we are in a position to understand better the forces of evolution which are gradually deciding the outcome of the struggle between capitalistic and socialistic principles.

However much one may differ from socialists, he is bound to observe that their leaders possess much brilliance of thought and skill of expression. Nothing is gained by taking an attitude of derision toward their incisive criticisms of capitalism. Socialism would not have aroused such bitter and desperate antagonism had not a number of its generalizations disclosed vulnerable places in the existing industrial order. Those people who want most to smite socialism usually do so the least, for the reason that their emotional reactions are so strong that they lose the power to respect integrity of mind wherever it may be found. The more vehement opposition becomes, the less intelligent it becomes. On the other hand, to concede the ability of socialistic thinkers is not to concede that their conclusions are right. Effective analysis of radical programs must endeavor to estimate the weight of socialistic ideas at their actual value.

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CHAPTER XXXVIII

ECONOMIC DEMOCRACY

Economic democracy is a broad term and varied definitions are given to it from time to time. The two most common definitions refer to democratic control over industry exercised through the medium of the political government, and to democratic control exercised through the medium of some special form of organization within industry itself.

The first concept of economic democracy would cover practically all of the matters which have already been discussed under the section on *public control*. The American government is a democracy, and when democratic government controls and regulates economic affairs, the process is certainly in the nature of economic democracy. This form of economic democracy covers government ownership and operation of industries, and would, for instance, include the Post Office or the Panama Canal as typical illustrations of economic democracy. Certain observers are disposed to term such uses of government authority state socialism, whereas others are disposed to term them state capitalism.

The dispute over terms is non-essential. The inclusion of public control or of government ownership and operation under economic democracy may be allowed as legitimate. It is not intended to analyze this form of economic democracy at this point, for the reason that most of what has been said under *public control* and under *radicalism* applies to *economic democracy* of this type. The mechanism of public control provides for a moderate assertion of democratic power through the agencies of the State, and the same mechanism expanded provides for the assertion of democratic power in the form of state ownership and operation. Moreover, although the form of democracy under a capitalistic state and a socialistic state would differ profoundly; nevertheless, in either case, state ownership and operation of industry is subject to the same institutional and psychological difficulties as were discussed under *radicalism*. Consequently, the discussion contained in the foregoing sections have a direct bearing on the problems of economic democracy attained through the framework of political democracy.

The discussion of this section has to do primarily with the second form of economic democracy, namely, that attained through the direct organization of industry itself on a democratic principle. Democracy is a term loosely used to cover a host of economic programs, and it is the general impression that as soon as a program of action has been labelled "Democracy," its success is predestined. Not a few economic thinkers voice the opinion that political democracy is already won in most

modern countries and that economic democracy is the next great human step forward. Assuming that political democracy is practically an unqualified success, they assume that to inaugurate the same structure of government for industry will assure similar happy results in that department of modern life. Such an attitude is uncritically optimistic. It trusts credulously in some obscure magic of "Democracy" to set industry at rights, and grossly overrates the power of a form of organization to escape from or to overcome the grave defects of human nature in the people who live within the organization and through whom it functions. As a preparation, therefore, for a careful and critical analysis of economic democracy, it is desirable to have a correct view of the present status of political democracy. Probably the best account for this purpose is that given by James Bryce in his work on *Modern Democracies*. The general nature of his conclusions is admirably summarized in the following quotation:

I may here . . . sum up in a few propositions certain broad conclusions which may be drawn from a review of modern popular governments. They are stated subject to certain exceptions, already mentioned, in the case of particular countries. . . .

Democracy has belied the prophecies both of its friends and of its enemies. It has failed to give some benefits which the former expected, it has escaped some of the evils which the latter feared. If the optimistic overvalued its moral influence, the pessimists undervalued its practical aptitudes. It has reproduced most of the evils which have belonged to other forms of government, though in different forms, and the few it has added are less serious than those evils of the older governments which it has escaped.

I. It has maintained public order while securing the liberty of the individual citizen.

II. It has given a civil administration as efficient as other forms of government have provided.

III. Its legislation has been more generally directed to the welfare of the poorer classes than has been that of other governments.

IV. It has not been inconstant or ungrateful.

V. It has not weakened patriotism or courage.

VI. It has been often wasteful and usually extravagant.

VII. It has not produced general contentment in each nation.

VIII. It has done little to improve international relations and insure peace, has not diminished class selfishness (witness Australia and New Zealand), has not fostered a cosmopolitan humanitarianism nor mitigated the dislike of men of a different color.

IX. It has not extinguished corruption and the malign influences wealth can exert upon government.

X. It has not removed the fear of revolutions.

XI. It has not enlisted in the service of the State a sufficient number of the most honest and capable citizens.

XII. Nevertheless it has, taken all in all, given better practical results than either the Rule of One Man or the Rule of a Class, for it has at least extinguished many of the evils by which they were defaced. . . .

In 1914 there were signs of decline in some countries where decline was hardly to have been expected, and of improvement in other countries, but nothing to indicate in any country either a wish to abandon democracy or the slightest prospect that anything would be gained thereby. Disappointment is expressed, complaints are made, but no permanent substitute has been suggested. . . .

Within the century and a half of its existence in the modern world free government has passed through many phases, and seems now to stand like the traveller who, on the verge of a great forest, sees many paths diverging into its recesses and knows not whither one or other will lead him.¹

The two most important forms of economic democracy which command deep interest at the present time are works councils and labor unions. The works councils are organizations of workers which are formed usually at the initiative of employers and in which powers are granted to laborers by the voluntary action of employers. Labor unions, on the other hand, are organizations of workers which are formed at the initiative of workers themselves and in which powers are won usually as grudging concessions from employers.

Works Councils.—The essential structure of the dominant types of works councils is fairly simple. The workers in a plant elect representatives who confer with representatives of the management. Nominating and balloting procedure takes place in much the same way as in a political organization. The representatives who are elected organize as a body, with a chairman and other officers, and establish the necessary committees and subcommittees to deal with special problems. The workers' representatives constitute the works council or shop committee and meet the representatives of the management in joint conference for the discussion of industrial problems, for the adjustment of grievances, and for general collective bargaining.

These works councils confine their attention to those phases of industrial problems which directly affect the welfare of labor. Such problems include, for the general run of plants, hours of labor, wage scales, and methods of payment. A large proportion of, but not all, works councils deal with social and recreational activities, mutual benefit, charity and relief, housing, coöperative stores, insurance, education, Americanization, rest rooms, lunch rooms, prizes, working conditions, accident prevention, factory sanitation, medical care and hygiene of the workers. A smaller proportion of the works councils deal with shop discipline, discharge, promotion, hiring, and transfer. Only a few councils deal with the technical improvement of production or with the problems of production management. None are allowed to concern themselves with the phases of management centering around finance, capitalization, or matters which are not directly of importance in the life of the worker.

The power and authority of works councils vary from company to company. In some cases, if workers and management fail to agree on an issue, it is referred to arbitration, but in most cases it is referred to high officials of the company or to the board of directors. Representatives of both workers and management vote on questions and in the overwhelming bulk of cases it is assumed, as a matter of course, that the voting power is equal. This assumption gives rise to the theory that

¹ Bryce, *Modern Democracies*, Vol. II, pp. 562-563, 597-598.

works councils give workers a share in the management. In all ordinary cases, the workers do participate in the management of the affairs which affect them. It should not, however, be overlooked that with most plans the company in the last analysis has ultimate authority in its own hands. Boards of directors do not surrender their ultimate authority in the event of a showdown, but in the everyday administration of works councils, a spirit of give and take and of sharing in management is maintained, and the ultimate location of authority is ignored as much as possible. In fact the success of collective dealing through works councils depends upon the thoroughness with which all questions as to the relative power of the two parties, labor and management, can be relegated to the background. Collective bargaining through works councils succeeds only in so far as fairness is substituted for force in industrial relations. If the management convinces labor at the outset that every principle and every detail of the council plan will be treated on the part of the company with perfect justice, candor and honesty, the plan is in a fair way toward success. But if the management hedges, misrepresents, or threatens, the plan is almost sure to collapse.²

Obviously, therefore, the installation of the machinery of industrial democracy merely creates an opportunity for the management to evoke a favorable response from labor. The mechanism of organization itself does not insure at all that industrial democracy will be attained. The importance of a good plan of industrial democracy does not consist in any power of the plan as a plan to secure industrial democracy; the importance of the plan consists merely in the fact that it provides a channel for the spirit of management to react on the spirit of labor. Of course, it is equally necessary that the spirit of labor shall be honest and fair, and that labor shall genuinely respond to the responsibilities and powers conferred upon it by the works council plan. But in most plans of this sort the genius and inspiration behind the plans comes from management, and unless management firmly takes the initiative in establishing a basis of confidence and fairness the plan will fail. For instance, the International Harvester Company has had works councils in twenty-four of its plants, and the success of the councils varies considerably in these plants. The degree of success varies, it is found, in direct ratio to the efficiency and spirit of the local management at each plant in applying the system to that particular plant. Moreover, it is necessary to have not merely the local superintendents and executives imbued with the proper attitude and understanding, but also the bosses, sub-bosses and foremen. To this end, many companies have established training schools for bosses and foremen, to acquaint them with the purpose of the works council plan, with its technique and with the new spirit which it is necessary for them to evince if the plan is to be a success. Finally, workers themselves have to be educated to understand the significance of the democratic policy, and have to receive correct and

² See address by L. W. Wallace, President of Society of Industrial Engineers, *Proceedings of 1919*.

adequate information about the affairs of the company in order to allay suspicion and establish confidence. Industrial democracy involves a technical organization, but it also involves,—and this is imperative,—a basic spirit of fairness and justice on the part of both labor and capital.

Labor Unions.—The structure of labor unions has many variations. Numerous structural types of unionism have developed, and an observation of these types is the most useful means of studying labor union structure. The bulk of labor unions in the United States are of the “craft type,” i.e., they are organized on the basis of the occupation or craft of the workers. For each distinct type of occupation there is a distinct trade union organization. These craft unions become federated in city, state, regional and national federations. The federal groupings aim to effect a certain degree of concerted thought and policy, but in fundamental policies and powers each constituent craft national retains its individual sovereignty and right of self-determination. A different and growing type of labor union is organized on the basis of a given industry. The coal miners’ unions are the most impressive illustrations of industrial unions, and include in their scope men of all crafts, occupations and trades, and men of all degrees of skill or lack of skill. A minor type of unionism organizes all the workers of a single geographical division, regardless of crafts or industries, into a single labor union. The craft, federation, industrial, and geographical bases of union organization give rise therefore to the main structural types of labor organization in American industry.

These structural types provide in various ways for the election of leaders by popular vote of the members. Local units send delegates to city or district or national or international units. The methods of balloting, the powers of members and of leaders, the administrative mechanisms, all show immense variations from industry to industry. The essence of the democratic structure of all types and forms is that the rank and file of unionists have the power to elect officers and thereby to express their opinions on the policies and methods of labor organization. Until recent years the local units of union organization were the dominant factors in the labor unions of this country, and they jealously safeguarded their local rights of self-determination in regard to fundamental policies. Recent years have witnessed a powerful movement toward centralization of union authority and influence in the hands of the national organizations. The weakness of labor in local collective bargaining and its strength in national collective bargaining, and the advantages of nationally administered benefit and strike funds have given this centralizing movement a steady impetus. The locals have found it necessary to preserve and augment their industrial power by a policy of uniting on a national scale. Conspicuous forms of control now commonly exercised by national over constituent local organizations are found in the “national regulation of admission requirements, the national control of strikes, and the adoption of national working rules.”³

³ G. E. Barnett, *Quarterly Journal of Economics*, XXVII, pp. 455-481.

The center of the brains of the labor union movement and of the real power of leadership exists among the leaders of the national organizations, and the federations of national organizations.

The source of labor union success is not the type of structure which allows a mass labor election, but is rather the aggressive spirit of the leaders themselves. Labor unionism is still in a militant stage and the militant type of leader tends to come to the front to direct its struggles. Leaders often feel it necessary to be domineering, to manipulate the rank and file, to ride rough-shod over mass suggestions which obstruct efficiency, to take action and get results, meantime bringing the rank and file along as best they can. Labor unions can get nowhere in the present industrial struggle by debating society tactics and by constant referendums to discover the will of members. As often as not, members have no will, and even when they do have, it is likely to be misinformed, shortsighted or suicidal. This does not mean that leaders are irresponsible individuals, and contemptuous of the rank and file; but it does mean that they face the imperative need for efficiency in dealing with employers and that the conditions of efficiency are a concentration of power and initiative in the hands of leaders and a willingness on the part of the rank and file to support the leaders as long as their policies get results in terms of better wages, hours and working conditions. Hence, labor union organization is democratic in the sense that a great deal of dictatorial authority rests with officers and leaders in the determination of immediate strategy, and that this authority is subject to the ultimate approval or disapproval of the rank and file. If the dictatorial and aggressive methods of one leader fail to get results, a new leader will be chosen and will be commissioned to use his large powers to win the desired results. Successful unionism therefore rests upon successful leadership and successful leadership rests upon results in terms of gains to the workers, attained by the aggressive tactics of union officials.⁴

In addition to the structural types of unionism, there are certain types which are classified on the basis of the functions which they perform, and of the purposes and methods of their activity.⁵ The dominant type, classified on this basis, is *business unionism*, so named because the unionists look upon their activities from a business point of view. They devote their energies to practical material gains, ordinarily through the use of collective bargaining. Their objective is "more, more, more, now." To raise wages, shorten hours, and improve working conditions are tangible, direct, positive objectives, and the union organizations of this type conceive the function of unionism to be to attain these objectives in a practical, business-like way. A second type is *friendly or uplift unionism*,—a type which inclines to be idealistic, philosophical and coöperative. It, too, uses collective bargaining, but mainly for such benevolent purposes as mutual insurance, profit sharing, friendly benefits, welfare

⁴ R. F. Hoxie, *Trade Unionism in the United States*, Chapter VII.

⁵ *Ibid.*, Chapters II-III.

work and social and educational improvement. Most employers who profess to believe in the right of laborers to organize into unions have in mind a unionism of this friendly or uplift type. People who believe in labor unions "as such" contemplate welfare unions whose efforts are directed toward a coöperative humanitarianism rather than toward a militant demand for practical, business-like gains for labor.

Radical unionism is a third type and, as the name suggests, applies to unions professing socialistic or revolutionary purposes. The most aggressive unions of this type have been those associated with the Industrial Workers of the World. The I. W. W. was conspicuous before the war, but many of the leaders of the movement were vigorously suppressed or were deported during the war period, and the formal organization of the I. W. W. was greatly weakened. Their ideas, however, were carried over in not a few cases to unions of the business type, or of the predatory type, by agitators or leaders who sought to spread their philosophy of unionism by "boring from within." It seems certain that the extent of this kind of penetration of old unions with I. W. W. ideas is considerably exaggerated in the popular mind.

A form of radical unionism which has more far-reaching significance is represented by such union organizations as the United Mine Workers of America, the Railroad Brotherhoods, and the Amalgamated Clothing Workers of America. The United Mine Workers are pressing for the nationalization of the mines along a quasi-socialistic direction and the Railroad Brotherhoods, by urging the adoption of the Plumb Plan for railroad operation, committed their union organizations to a policy which was essentially in the nature of guild socialism. The purposes of the Amalgamated Clothing Workers may be set forth in the following quotation: "An analysis of the strategy of the new unionism will discover in it two fundamental objectives to which all other policies are subordinated. The first is to organize *all* the workers in the industry; the second is to develop them, through their daily struggles, into a class-conscious labor army, able and ready to assume control of industry. . . . Their whole tendency is in the direction of training the workers for assuming control of production, and of accepting the social and economic responsibility which such control involves."⁶ To this end, the garment unions look forward to the abolition of the capitalistic system. Radical unionism has increased in strength in recent years, and particularly so in such basic industries as coal, transportation and clothing.

A fourth type has been designated *predatory unionism*. The most recent exposure of predatory unionism has been in the building trades of large cities. In New York City, a notorious labor leader by the name of Brindell exercised dictatorial and unscrupulous powers for the sake of exacting fees, bribes and blackmail from both laborers and employers. Such unions *hold up* all parties to industry by fair means or foul whenever they see an opportunity to reap a selfish gain. In its extreme forms, predatory unionism adopts *guerilla* tactics, and by ruthless, secret,

⁶ Budish and Soule, *The New Unionism*, pp. 12, 194-195, 204.

violent strategy strives to exact the last pound of flesh which the industrial body will bear.

The great bulk of labor unionism seeks its ends by means of collective bargaining. The nature of collective bargaining differs greatly between the ordinary works council and the bulk of labor unions in that the former depends for success upon the voluntary good will of the employer and the spirit of coöperation between labor and capital, whereas the latter depends upon the power of the labor union to win recognition from the employer and upon the relative bargaining power of labor and capital. Most of the success of works councils comes from the fact that employers coöperate with the councils wholeheartedly; and many of the abuses and excesses of labor unions come from the fact that employers dislike to coöperate with labor unions, and usually consent to deal with them only when forced to do so. Works councils perform their responsibilities in an atmosphere of friendly coöperation; labor unions perform their responsibilities in an atmosphere of hostility, suspicion, and threats.

The consequence is that labor unions are characterized by widespread policies which are highly objectionable from the standpoint of the best interests not merely of employers and the public, but of laborers themselves. The objectionable tactics of organized labor arise largely from the fact that labor unions have to fight every inch of the way for industrial control and have to fight then for self-preservation to perpetuate what has been won. Labor resorts to the closed shop in response to basic human desires for self-protection, because the open shop has so often meant in actual practice a free opportunity for employers to discriminate against union members and to cripple union organization. Union rules and regulations which restrict production seem aimed often to secure the maximum of pay for the minimum of work, and in this respect they reciprocate the endeavor of any number of employers to secure the maximum of work from labor for the minimum of pay. If one were to draw up a list of the faults, vices and abuses of the bulk of labor unions and were to trace the causes of each item on the list, he would find them largely in the unhealthy spirit of distrust and antagonism which is widespread in American industry. The penetrating observations of Felix Frankfurter, from experience on President Wilson's Mediation Commission and as chairman of the National War Labor Policies Board, are of sound practical value: "The unions must still fight for their life instead of being a recognized social instrument tested by their contributions to the community as a whole. Not until they are generously and frankly recognized as having a rightful place in our national life will the leaders of labor have time and energy to give to the solution of the difficult social and industrial problems with which organized labor should concern itself. . . . If the fighting spirit imposed by capital upon labor were withdrawn, then we could proceed to the question which this conference raises, namely: How shall we release the energies of the masses of the people who are workers so that our civi-

lization shall not only remove the sores and injustices which infest it but shall be something fit and adequate for democracy?"

The deepest difficulties in insuring that labor unions are made over into safe and trustworthy instruments of industrial democracy are psychological difficulties. The powerful impulses of employers towards self-assertion, domination and freedom of action are thwarted by the demands of labor unions for group self-assertion in deciding industrial issues. Habits, traditions and customs have constituted a steady psychological influence on the business man to make him feel that there is one and only one way to manage business efficiently and that is to run it as he pleases, free from outside restraint; labor unions challenge this accumulation of precepts and habits in business, and it is inevitable and natural for the business man to resist the violation of those business principles which he has come to believe are axiomatic. But the greatest psychological force in shaping the attitude of the business man toward labor unions is fear. The business man fears that if he concedes an inch to labor unions they will take a mile. He has no assurance that if he attempts to coöperate with labor in a constructive way he may not find himself soon at the mercy of predatory unionism. It is this universal fear that labor unions will cling to their abuses and faults if employers do freely and frankly admit them to a share of industrial control which primarily accounts for the fighting attitude of hostility and resistance to the tactics of labor unions. These psychological obstacles to the advance of unionism are at the heart of the problem. As a matter of fact, it would doubtless be disastrous for employers generally to turn over full powers to labor unions suddenly. What would happen, however, if employers approached unions in the same manner as the more progressive of them have approached works councils is not so disheartening a prospect. The method of approach in that case is a deliberate and painstaking effort by the employer to establish frank coöperation, to give honest information about the financial affairs of the company, to educate foremen, bosses and superintendents to perform intelligently their parts under the works council system, and to create mutual confidence by every art and policy. The contrast between the method of approach to works councils and to labor unions is extreme, and the success of the constructive and coöperative method applied to labor unions would go far toward removing those abuses as they now exist in unionism.

William Howard Taft, joint chairman during the war of the National War Labor Board and since appointed Chief Justice of the United States Supreme Court, has summarized the situation in words which express both sound public policy and sound economic principles: "Organization of labor has become a recognized institution in all the civilized countries of the world. It has come to stay; it is full of usefulness and is necessary to the laborer. It shows serious defects at times and in some unions. . . . These are evils that as the unions grow in wise and intelligent leadership we may well hope are being well minimized. . . . Whether we will or not, the group system is here to stay, and every man inter-

ested in public affairs must recognize that it has to be dealt with as a condition, to be favored in such a way as to minimize its abuses and to increase its utility.”⁷

The foregoing account of the institutional and psychological relations between employers and employees would be incomplete at a most important point if the responsibility of labor unions, especially of their leaders, in the circumstances were not pointed out. The militant attitude of labor union leaders may be quite natural under the prevailing conditions, but there will certainly be no escape from industrial antagonism until unionism accepts a more constructive attitude toward problems of production. Unionism inherits a tradition of aggressiveness and militancy and the tradition is extremely tenacious; but unless the tradition can be altered sufficiently to make a place in trade union principles for a recognition of the basic economic fact that labor organizations can safely be trusted with power only when they evince a willingness and a capacity to promote, encourage and organize greater productive efficiency, then labor can scarcely hope for business recognition or public support. The reconstruction of labor union organization and strategy on principles conducive to labor efficiency and to maximum production is a *sine qua non* of evolving sound industrial democracy from present trade union structure.

In large measure, such a reconstruction of unionism can come only as an act of will on the part of unionists, especially of their leaders. But this outcome can scarcely be hoped for if it is to come merely as an act of will. The irrational and blindly impulsive forces which tend to stifle such a deliberate change of mental outlook are enormous, and, it must be admitted, they are likely to prevail under the present state of affairs. Only rarely can men, especially masses of men, rise above their institutional surroundings and deliberately resolve upon a new spirit and a new attitude toward their responsibilities. The level of the behavior of the crowd cannot rise much above the level of its institutional environment. Industrial institutions which envoke pernicious human tendencies and which stimulate dangerous expressions of the primary human instincts cannot be counteracted by the mere logical or rational powers of the crowd mind. On the other hand, institutional arrangements which help men to a coöperative attitude, to self-control, to constructive effort, have the most salutary influences upon the beliefs which they put into action. Hence to invent by gradual experiment and by intelligent trial and error the type of industrial institutions best fitted to help the better and hinder the more pernicious expressions of the great human energies is a paramount task for all those who desire to share in hastening the progress of industrial democracy.⁸

A crucial point in industrial institutions pertains to the proper basis of collective bargaining. The great slogan of labor is that “labor is entitled to collective bargaining through representatives of its own

⁷ D. Bloomfield, *Problems of Labor*, pp. 212-214.

⁸ See James Bryce, *Modern Democracies*, Vol. I, p. 10.

choice." The objection raised by employers is that such a principle enables labor to be represented by leaders of the national union who are not employees of the particular plant where they are representing labor in collective bargaining. Employers have favored the works council because in every case the representatives of the workers at any single plant are themselves workers at that plant. Being employed at the plant, the works council representatives presumably know from direct experience something about the problems involved in production and in labor administration, and have a strong spirit of responsibility to their immediate constituents with whom they mingle constantly in the day's work. If an employer accepts the labor union principle of collective bargaining, he is likely to have to deal, not with a workman in his own plant, but with a leader from a national union's headquarters. From the employers' standpoint this union representative is an outsider and a meddler, and knows little or nothing of the particular problems of an individual plant. To have an outsider interfering in the management of his business impresses the employer as absurd and arbitrary. Hence, the progressive employer accepts the general principle of collective bargaining through representatives of labor's own choice, with the proviso that those representatives shall be persons actually working in the plant which they presume to represent.

From the labor unions' viewpoint, this policy of employers is looked upon as a subterfuge. No one dictates to the employer that his agent in collective bargaining shall be actually employed in the plant. If the corporation is a large one, comprising a dozen or a score or more of plants, the company centralizes its part in collective bargaining in the hands of some executive at the main office, who of course cannot be employed in each one of the separate plants of the company. Labor reasons that it should possess a similar prerogative of centralizing its parts in collective bargaining. Moreover, labor finds that it is no light task to match labor's brains against the best brains that management can produce. Suppose, argues labor, two men in ordinary life have a dispute and bring their case into a court. Suppose one man hires a brilliant lawyer, a man of great talent and ability, and the other man hires only a mediocre lawyer, a man of slight talent and weak ability. The chances are all in favor of a decision for the man who is ably represented. So in industrial relations, management is represented by brilliant men, by the best experts that management can procure; labor, in order to be represented on equal terms, must have expert bargainers, men experienced in all the strategy of bargaining, the best brains that labor can procure. The detached individual plant is likely not to have any workman on the job who is fully equal to the task; hence there is need of a man trained and practiced in the art of bargaining, a man direct from national union headquarters.

President Wilson's first industrial conference, appointed to deal with the problems of post-war industrial reconstruction, was composed of prominent authorities representing labor, capital and the public. The

attention of all groups was directed to this problem of whether or not labor is entitled to representatives of its own choice in collective bargaining. In the final vote, the public group and the labor group voted in favor of the unqualified right of labor to representatives of its own choice.⁹ A minority of the capital group voted with labor and the public, but inasmuch as the system of voting in force at the conference provided that the adoption of any measure required a majority vote in each of the three groups, the resolution was lost. Thereupon the conference broke up.

In a discussion of the broader principles of industrial democracy, it is important to consider the question of the relation in practice between works councils and labor unions. Are the two supplementary, or do works councils tend to eliminate labor unions entirely? The consensus of opinion among employers using works councils is to the effect that they have nothing against the union and are not aiming to destroy it or eliminate it. They are willing that labor unions should exist, and will allow workers who are union members to sit on the works councils as representatives of the workers of the plant. They contend that there is no valid reason why the union should not supplement the works council. With rare exceptions, they decline to enter into collective bargaining with the union, or to give it official recognition, claiming that one collective bargaining agency is enough and that this is supplied in the works council. Hence, the real meaning of the assertion by employers that they believe in a union supplementing the works council is that they believe in that particular type of union which is classified as friendly or uplift unionism. The welfare, humanitarian and social features of such a unionism may, in the judgment of employers, supplement the efforts of the works council. Theoretically, this division of supplementary functions appears sound and plausible. It should be carefully noted, however, that the works councils themselves undertake such a comprehensive program that when they get through there is little left for supplementing. The works councils undertake welfare work, humanitarian measures, social features, and virtually all forms of friendly and uplift activity. Moreover, the works councils do this usually on company time and at company expense. In the face of this condition, a union which could not gain recognition, which could not bargain for better wages, hours or working conditions, which could only undertake friendly and uplift work, would be an anomaly. It could not collect dues for performing humanitarian duties which the works councils perform largely at company expense and it would gradually dwindle in power and influence. In theory, the two may be termed supplementary, but in actual life the works council when efficiently handled covers the ground so thoroughly that there is nothing essential left for the union

⁹ The full text of the resolution is as follows: "The right of wage earners to organize without discrimination, to bargain collectively, to be represented by representatives of their own choosing in negotiations and adjustments with employers in respect to wages, hours of labor, and relations and conditions of employment is recognized."

to do. Hence, as a matter of plain industrial fact, the efficiently handled works council tends to be exclusive of the labor union. The course of contemporary events indicates that the works councils are in fairly exclusive control of collective bargaining in most companies where the councils are employed and the trade unions in fairly exclusive control of collective bargaining in most other cases where any form of collective dealing is in vogue, with occasional exceptional cases where the two stand in some supplementary relationship.

All lines of thought on these issues of industrial democracy lead back to the great fact that the war and post-war period set loose a new flood of human energy in the direction of more control by labor over its own life in industry. Before the war the emphasis in industrial thinking was upon less poverty, better wages, shorter hours and better working conditions. Today the emphasis is upon labor's right and ability to participate in the government of industry. The former demands have not been abandoned, but they have been coördinated with a greater demand that with better wages, hours and working conditions must come a new measure of labor control over industrial matters which deeply affect the life and welfare of labor. Some application of the principle of self-determination to the laborer's position in industry is looked upon as the prerequisite of any serious industrial democracy. Whether the instrument be a labor union or a works council, the worker feels impelled toward a new status as one of the controlling influences in the management of industry. Sidney and Beatrice Webb, writing in 1920, concisely interpreted the situation in America and Great Britain as follows: "The new ideas which are today taking root in the trade union world center round the aspiration of the organizations of manual workers to take part—some would urge the predominant part, a few might say the sole part—in the control and direction of the industries in which they gain their livelihood."¹⁰

This being the plain fact of the case, it is imperative to realize that beneath the movement for control lies a truly enormous psychological force. Some of the deepest impulses of millions of human beings are seeking for an opportunity of expression. At this particular stage of industrial progress a powerful outburst of human aspirations has appeared pointing toward some form of democratic control of economic life. It would be psychologically unsound and economically disastrous to give such gigantic human energies free reign. But it is both sound and necessary to provide helpful channels of expression for them, to accustom them to self-restraint and self-control, to subject them to adequate working discipline, to repress vicious and pernicious forms of expression, to educate and enlighten and inform men to understand themselves and others in order that the nervous breakdowns and the psychic revolts of a period of industrial transition may be healthfully averted, and to raise the level of intelligence among the rank and file of laborers so that they may be enabled to make the right adaptations

¹⁰ *History of Trade Unionism.*

between human nature and economic institutions. The reshaping simultaneously of men and institutions is the secure pathway toward industrial democracy.

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INDEX

- Acquisitive society, 147
- Advertising, consumption and, 100-03
- Agriculture, problems of, Chapter XVIII, 320-45; income, 320-3; wealth, 323-5; population, 325-7; prices, 329-32; taxation, 325-7; transportation, 338; marketing, 340-2; credit, 341, 575; international, 342-4; tariff, 696-7; medieval, 18; development, 29-30; production indexes, 41; per capita, 47-8; per worker, 48-9
- Anthropology, early industry and, 7
- Arbitration, 435-40
- Automatic machine, 54-7
- Backward countries, industrial revolution, 37
- Banking, Chapter XXVII, 553-78; classification, 553-4; commercial, 554-5; discount, deposit and issue, 555-9; reserves, 564-5; Federal reserve system, 562-4; discounts, 565-6, 569-70; clearance, 572-5; agriculture and, 576; price control, 576-8; business cycle, 605-8; foreign trade, 701
- Bargaining power, wages and, 381-2
- Barter, 11
- Birth rates, 411-12
- Budgets, 82; fiscal, 741
- Business, research, 77
- Business cycle, wage control and, 389-91; employment and, 421-3; prices and, 541; meaning of, 578; duration of, 578-81; phases of, 581-5; securities and speculation, 585-6; commodity prices, 587-9; interest rates, 590-1; profits, 592-4; Federal reserve policy, 599-607; production, 597-9; consumption, 599-600; employment, 601-3; theories of, 603-5; stabilization of, 605-11
- Capital, Chapters XIV-XVI, 247-94; definitions, 247-8; supply and demand, 253-7; corporation and, 257-9; value and, 259-61; growth of, 269-71; fluctuations in supply, 273-4; fluctuations in demand, 274; savings, 280-2; export of, 652-3
- Capitalization, and value, 166-8; and land, 299-301
- Choices, making of, 92; controlling factors, 92-5; guidance of, 99-106
- Clayton Act, 756-8
- Clearance, banks, 571-5
- Coinage, 497-500
- Collective bargaining, 429-33, 780-92
- Combination, 66-8; trend toward, 465-7; evolution of forms of, 469-71; reasons for, 477; advantages of, 478-81; successes and failures, 483-7; foreign trade and, 702
- Commerce, 18th century, 19-20; *see* exports and imports
- Communication, development of, 28-30
- Communism, 772
- Comparative advantage, 664-7
- Compensated dollar, 576-7; 607-8
- Competition, unfair, 175-7; and price cutting, 176; discrimination, 177; and uniform price, 178-81; and reason, 181-2; and monopoly, 189-93; large scale, 487-91; coöperation and, 491-2; 126-7
- Complementary goods, 122
- Conservation, 59-61
- Consumer's goods, 149-52
- Consumption, Chapters VI-VII, 79-112; defined, 5; business cycle, 599-601; taxes and, 726-8; socialism and, 776; meaning of, 79; measurement of, 80; description of, 81-7; fluctuations of, 86-8; margin of, 122
- Control, public, Chapter XXXVI, 745-68
- Coördination, 61-4
- Corporation, capital and, 257-9; as property institution, 451-3; management of, 471-7; taxes and, 722-4; research, 74-5
- Cost, psychological, 118-19; opportunity, 121; increasing, 132; decreasing, 132-3; constant, 133; joint, 133-4; overhead, 134-6; normal, 136-8; original, 170; repro-

- duction, 170-1; land returns and, 315-7; marginal, 264-6
- Cost of living, 373-5, 391; tariff and, 695-6
- Credit, Chapter XXV, 493-523; agriculture, 341-2; *see* banking
- Customs duties, 728-9
- Cyclical changes, profit, 160; interest, 276; *see* business cycles
- Cyclical fluctuation, 51, 87-88, 160, 276
- Dawes commission, report of, 551-2
- Death rates, 411-12
- Debt, public, 736-40
- Demand, Chapter IX, 125-43; indexes, 156-7; reversal of, 163-4; interest and, 253-7; of capital, 274; of land, 301; of money, 513-14; marginal, 128-30; elasticity of, 130
- Democracy, economic, Chapter XXXVIII, 780-92
- Derived value, 123
- Diminishing returns, 306-9; and size of management, 311; and population growth, 311
- Discount policy, 569-70
- Distribution, Part IV; defined, 6; profit, Chapters XII-XIII, 195-246; personal inequalities, 442-5; socialistic, 777-9; indexes, 155-6; land, Chapters XVII-XVIII, 295-345; capital and interest, Chapters XIV-XVI, 247-94; wages, Chapters XIX-XXI, 346-441
- Disutility, 118; marginal, 119
- Division of labor, primitive, 10; efficiency of, 52-3; geographic, 58-9
- Dollar, consumer's, 89-90
- Economics, definition, 1-6
- Efficiency, 63
- Employee relations, 417-41
- Employment, nature of, 417-19; fluctuations in, 421-3; business cycles, 601-03
- Entrepreneur, The, 66
- Equation, of money and prices, 514-17
- Evolution, economic, 8; of value theory, 140-2; consumption, 107
- Excess profits, 209-11
- Excess profits tax, 730
- Exchange, defined, 5-6; *see* value and exchange
- Expenditures, government and, 710-14
- Exports, advantage of, 664-8; geographical distribution, 668-70; by commodity groups, 670-5; domestic production and, 671-3, 676-8; foreign exchange and, 678-84; physical quantities of, 680; tariff and, 686-98; methods of competition, 699-703; government and, 699-700; of capital, Chapter XXXI, 652-63
- Factors in production, 64-6
- Fatigue, 425-9
- Federal reserve notes, 501, 571
- Federal reserve system, administration, 562-4; reserves, 564-5; discounting, 566-8; clearings, 571-5; members, 575-6; farm credit, 576; business cycle, 595-7
- Federal trade commission, 756-8
- Fiat money, 511-12; and foreign exchange, 632-52
- Fiscal duties of banks, 575; budgets, 740
- Fluctuations, types of, 49-51
- Food, and consumption, 81-4
- Foreign exchange, nature of, 613; demand and supply, 614; balance sheet of United States, 614-19; bills and documents, 619-20; markets, 621-2; par, 624-6, 633-9; automatic correctives, 626-8; gold standard, 620-31; fiat standard, 632-42; world war, 632-52; stabilization of, 646-9; effect on trade, 678-81
- Foreign investment, 653-63
- Foreign trade, Chapters XXXII-XXXIII, 664-704; *see* Exports and Imports
- France, industrial revolution, 33; inflation, 549
- Free trade, 691-2
- Germany, industrial revolution, 34; inflation, 551-2
- Gilds, 17-18
- Going concern, 260-1; and value, 166-8
- Gold, production of, 536-9; circulation of, 540
- Gold premium, 633
- Gold price par of exchange, 631-5
- Gold standard, 506-7; and foreign exchange, 620-31
- Goods, economic, 3; free, 3
- Government, early economic function, 14; and production, 65; research,

- 72-4; regulation, 31; taxation and, Chapter XXXIII-XXXIV, 707-44; productive character of, 707-10; increase of expenses, 710-14; revenue sources, 714-16, 752-8; debts of, 736-40; regulation of business, 750-60; and consumption, 104-6; profit and, 234-7; foreign trade and, 699-700
- History, economic, Chapters II-III, 7-38
- Hours of work, 423-5
- Immigration, 404-7
- Imports, advantage of, 664-8; tariff and, 686-98; raw materials and, 702-6
- Incentives, of labor, 376-81; and invention, 76-7
- Incidence of taxation, 741-4
- Income, tax on, 2-3; agricultural, 319-23; labor, 391-3; inequalities of, 442-63; effort and, 445-6; factory workers, 96-8, 157; farm, 98
- Income taxes, 729-34
- Increasing costs, and land, 309-10; and value, 132
- Indexes, analysis of price, 525-31
- Industrialism, 37
- Industrial peace, 435-41
- Industrial revolution, origin, 20-1; inventions, 22-30; in England, 22-4, 35; in United States, 24-7; world wide, 32-7
- Inequalities, wages and, 354-7; of ownership and income, Chapter XXIII, 442-63; value and, 120-1
- Inflation, Chapter XXVI, 525-52; profit and, 234-5; wages and, 393-4; chart of, 518; profiteering and, 521; social consequences, 521-4; agriculture and, 522; United States, 544-5; world, 547-56
- Inheritance taxes, 734-36
- Institutions, 449-60
- Insurance, risk and, 214-18; forms of, 214-18
- Interest, Chapters XIV-XVI, 247-94; theory of, 249-52; supply and demand, 253-7, 275; seasonal, secular, and cyclical trends, 276-9; the right rate, 291; business cycle, 590-1
- Internal Excise, *see under* Government, and Taxation
- International, wages, 401-4; balance of payments, Chapter XXIX, 613-631; *see* foreign exchange; production, 683-705
- International relations, Chapters XXIX-XXXIII, 613-704
- International trade, Chapters XXXII-XXXIII, 664-705; *see* Exports and Imports
- Interstate Commerce Commission, 750-1
- Inventions, 22-30, 69-75
- Japan, industrial revolution, 36
- Labor, history of, 30; *see* Wages; relations, Chapter XXII, 417-41; hours, 423-5; bargaining power, 429-32; unions, 429-33; government control of, 761-2
- Labor unions, 784-92
- Land, returns on, Chapters XVII-XVIII, 295-345; definitions, 295-7; ownership and tenancy, 332-5
- Large scale production, 66
- Legal tender, 501-2
- Leisure, and consumption, 94
- Localization of industry, 58
- Machine, and production, 54-7; and consumption, 94
- Machine age, 11, 15-21
- Malthusian theory of population, 407-15
- Management, efficiency of, 63-4; Chapter XXIV, 464-92; size of, 465-7; types of, 468-9; corporate, 471-7
- Manor, 15
- Manufactures, development in United States, 22-30; indexes of, 42; value added, 45; per capita, 47-8; per worker, 48-9
- Marginal, wage, 353-8; saving, 260-4; producer, 264-6
- Margin of substitution, and land, 304-6
- Marketing, agriculture and, 340-2
- Minimum wage, 370-1, 373-5
- Mining, indexes of, 42
- Money, defined, 494; qualities of, 495-7; kinds of in United States, 499-500; functions of, 502-5; fiat, 511-12; supply and demand, 513
- Money and credit, Chapter XXV, 493-524
- Money economy, Chapter X, 144; meaning of, 144-5; differential gains, 145-6; foreign trade, 685-6

- Monopoly, and price policies, 138-9, 182-7; limits to price, 190-3; regulation of, 190-2; and inequalities of fortune, 457-8
- National bank notes, 501
- National bank system, 559-62
- National income, estimated, 46
- National wealth, estimated, 267-9
- Net value product, 43
- Normal cost and price, 136-8
- Normal equilibrium, 161-2
- Normal profit, 196-9
- Note Issue, 557; history of, 559-60; Federal reserve, 570-1; Federal reserve bank notes, 571; National bank notes, 501
- Opportunity cost, 121
- Overhead burden, 287-8
- Overhead cost, 134-6
- Ownership, diffusion of, 442-5; inequalities of, 446-7
- Par collection, 574-5
- Par of exchange, 624-6, 633-9
- Pecuniary, 1-6; advantage in foreign trade, 685-6; supply and demand, 148-161; control of business, Chapter X, 144-66; profit, 222-4; and business combination, 478-80; in international relations, 649-51
- Population, and consumption, 109; and diminishing returns, 311; and agriculture, 327-9, 414; Malthusian theory, 407-15; history of, 31; indexes of, 42
- Power, use in industry, 27, 68-9; per capita, 47-8; per worker, 48-9
- Price, defined, 6; and value, 117-18; normal, 137-8
- Price fixing, 172-3
- Price maintenance, 176
- Prices, wholesale and retail, 158; by groups, 159-62; agricultural, 329-32; indexes, 514, 527-31; quantity theory of, 514-17; trend of general price level, 518, 531-6; importance of, 541-51; fluctuations, 519-24; movements of, Chapter XXVI, 525-52; war and post-war stabilization of, 576-9; business cycle and, 587-9
- Price system, and consumption, 94-6
- Production, defined, 5, 39; measurement of, 40; indexes of, 40-3; Chapters III-V; per capita, 47-8; per worker, 48-9; quantity, 54; factors in, 64-6; large scale, 66; problems of, Chapter V, 58-78; indexes, 149-52; profit and, 225-7; business cycle, 597-9; international organization of, 683-705; socialism and, 774-816
- Profit, meaning of, 195-6; normal, 196-9; and risk, 199-202; accounting view of, 202-4; income tax and, 203; inequalities of, 205-10; production and, 225-8; value and, 228-31; wages and, 234-5; government and, 234-6; motives and, 239-40; business cycle and, 290-3
- Promoters, economic function of, 481-3
- Property institutions, 449-60; government and, 707-10
- Proportionality, land and, 309-11
- Protection, tariff and, 686-91; free trade and, 691-2; method of tariff making, 692-4
- Psychology, and consumption, 100-02; labor and, 376-81; invention and, 761-7
- Public control, 104-6
- Public finance, Chapters XXXIII-XXXIV, 707-44; *see* Government, also Taxation
- Public works, planning of, 609-10
- Purchasing power, par of exchange, 635-40
- Quantity production, 54
- Quantity theory of prices, 514-17
- Radicalism, Chapter XXXVII, 769-79
- Railroad Labor Board, 752-3
- Rate making and value, 169-71
- Raw materials, foreign trade and, 703-6
- Real wages, 364-6
- Reform, 762-5
- Regulation, business and, 750-61
- Rent, economic, 297-9; commercial, 297
- Representative firm, 210-11
- Research, 69-75
- Residual changes, 51, 88; profit, 160; interest, 277
- Resources, conservation, 59-61
- Retail trade, 157, 88-9
- Risk, profit and, 199-202; insurance and, 214; speculation and, 218-19
- Russia, industrial revolution, 35; inflation, 555

- Salesmanship, and consumption, 100
 Savings, 260-4; by whom made, 280-2;
 how used, 283-4; percent of national
 income, 284; of the United States,
 285
 Science, 69
 Seasonal changes, 49, 87; profit, 160;
 interest, 276
 Secular changes, 49, 87; profit, 160;
 interest, 278
 Sherman Anti-Trust Act, 755-6
 Shifting of taxation, 741-4
 Silver legislation, 509-11
 Smith, Adam, 146
 Socialism, Chapter XXXVII, 769-79
 Soviet, 772-3
 Specialization, 52-3; international,
 664-6
 Speculation, risk and, 218-20; stock
 market and business cycle, 585-7
 Stabilizing the dollar, 576-8; 607-8
 Standardization, 53-4; wages and,
 383-4; aid in foreign competition,
 674-5
 Standard of living, 108-10; labor and,
 369-75
 Standards, money, 506-11
 Static equilibrium, 196-9
 Strikes, 438-41, 784-92
 Supply, 117, Chapter IX, 125-43;
 variations, 130-4; indexes of, 149-
 54; stocks of goods, 153; reversal
 of, 163-4; interest and, 253-7; of
 capital, 273; of land, 301, 312-15;
 of money, 513-14; fixed, 134
 Surplus, saver's, 261-4; producer's,
 264-6; corporate savings, 281-2
 Syndicalism, 772

 Tariff, protective, 686-94; method of
 making, 693-4; recent tendencies,
 694-5; cost of living and, 695; agri-
 culture and, 696-7; property and,
 697-8; as taxation, 728-9
 Taxation, Chapters XXXIII-XXXIV,
 707-44; productive service of gov-
 ernment, 707-10; expenditure of,
 710-14; justice in, 716-18; property
 tax, 719-22; corporation and busi-
 ness taxes, 722-4; forms of, 722-4;
 of income, 729-34; war and excess
 profits, 734; inheritance, 734-6; and
 value, 173; farm land and, 335-6;
 foreign trade and, 699-703; effect
 of war on, 749

 Technology of production, 8-12, 51;
 and consumption, 93-4
 Tenancy, 532-5
 Towns, 16
 Transportation, development of, 28;
 indexes of, 42; agriculture and,
 338-9; foreign trade and, 700-
 01
 Trusts, *see* Combination

 Unearned increment, 317-19
 Unemployment, business cycles, 601-3;
 prevention and relief, 610-11
 Unions, 784-92; bargaining and, 429-
 33; membership, 433-5; and indus-
 trial peace, 435-41
 Utility, definition, 114-15; diminishing,
 115-16; marginal, 116-17; and value,
 117-24

 Value, of money, 514-16; of securi-
 ties, 166-8; of public utilities, 169-
 71; reasonable, 169; and price fix-
 ing, 172-3; profit and, 228-31; of
 national wealth, 267-9; of land,
 229-301; appreciation, 317-19; labor
 and, 359-61; socialism, 778; his-
 tory of theory, 139-43
 Value and exchange, Chapters VIII-
 X, 113-43; definitions, 113-14; the-
 ory of, 113-24; derived, 123; sup-
 ply and demand, 125-42
 Veblen, T. B., 147

 Wages, Chapters XIX-XXI, 346-441;
 nature of, 346-8; share in distribu-
 tion, 349-51; theories of, 351-3;
 real, 364-6; standard of living and,
 369-75; minimum, 370-1; ability
 and, 383-4; education and, 384-5;
 hazards and, 385; control of, 388-
 416; increase of, 394-9; of women,
 400-01; international comparisons,
 401-4; immigration and, 404-7;
 profit and, 231-2
 War, world, inflation and deflation,
 544-52; economic administration
 and, 749
 Wealth, 1-6; national, 267-9; of va-
 rious countries, 271-3; agricultural,
 323-5
 Welfare, profit and, 241-5; fatigue
 and, 427-9
 Works councils, 782-4

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